

Chapter 8

How to use loops

A for statement

```
for ( var count = 1; count <= 10; count++ ) {  
    alert ( count );  
}
```

A for loop to display even numbers from 2 to 10

```
for ( var number = 2; number <= 10; number += 2 ) {  
    alert( number );  
}
```

A while loop to validate user input

```
var value = parseInt(
    prompt("Please enter a number from 1 to 10") );

while ( isNaN(value) || value < 1 || value > 10 ) {
    alert("You did not enter a number between 1 and 10.");
    value = parseInt(
        prompt("Please enter a number from 1 to 10") );
}
```

A while loop that finds the average of a series of numbers

```
alert("Enter a non-number to stop.");

var total = 0, count = 0, number;
number = parseFloat( prompt("Enter a number") );
while ( !isNaN(number) ) {
    total += number;
    count++;
    number = parseFloat( prompt("Enter another number") );
}

var average = total / count;

if ( isNaN(average) ) {
    alert("You didn't enter any numbers.");
} else {
    alert("The average is: " + average);
}
```

A while loop that counts dice rolls until a six is rolled

```
var rolls = 1;
while ( random_number(1,6) != 6 ) {
    rolls++;
}

alert("Number of times to roll a six: " + rolls);

// NOTE: See figure 7-5 for the random_number function
```

Nested while loops that find the average and max to roll a six

```
var total = 0, count = 0, max = -Infinity;
var rolls;

while ( count < 10000 ) {
    rolls = 1;
    while ( random_number(1, 6) != 6 ) {
        rolls++;
    }
    total += rolls;
    count++;
    if ( rolls > max ) max = rolls;
}

var average = total / count;

alert ("Average rolls: " + average);
alert ("Max rolls: " + max);
```

A do-while loop to validate user input

```
var value, valid;
do {
    value = parseInt(
        prompt("Enter a number between 1 and 10") );

    if (isNaN(value) || value < 1 || value > 10) {
        alert("You did not enter a valid number.");
        valid = false;
    } else {
        valid = true;
    }
} while ( !valid );
```

A do-while loop that counts dice rolls until a six is rolled

```
var rolls = 0;
do {
    rolls ++;
} while ( random_number(1,6) != 6 );

alert("Number of times to roll a six: " + rolls);

// NOTE: See figure 7-5 for the random_number function
```

The break statement in a while loop

```
var number;
while (true) {
    number = parseInt(
        prompt("Enter a number from 1 to 10.") );

    if ( isNaN(number) || number < 1 || number > 10 ) {
        alert("Invalid entry. Try again.");
    } else {
        break;
    }
}
```

The break statement in a for loop

```
var number = 31, prime = true;
for ( var i = 2; i < number; i++ ) {
    if ( number % i == 0 ) {
        prime = false;
        break;
    }
}
```

The continue statement in a for loop

```
for ( var number = 1; number <= 10; number++ ) {  
    if ( number % 3 == 0 ) continue;  
    alert(number);  
}  
// Only displays 1, 2, 4, 5, 7, 8, and 10
```

The continue statement in a while loop

```
var number = 1;  
while ( number <= 10 ) {  
    if ( number % 3 == 0 ) {  
        number++;  
        continue;  
    }  
    alert(number);  
    number++;  
}  
// Only displays 1, 2, 4, 5, 7, 8, and 10
```