

# Loops

## Terms

Break statement

Continue statement

Do-while statement

For statement

Infinite loop

Iteration

Loops

Loop variable

Nested loop

While statement

## Summary

- We use *loops* to repeat a set of statements.
- In C++, we have four types of loops: **for** loops, range-based **for** loops, **while** loops, and **do-while** loops.
- **For** loops are useful when we know ahead of time how many times we want to repeat something.
- Range-based **for** loops are useful when iterating over a list of items (eg an array or a string).
- **While** and **do-while** loops are often used when we don't know ahead of time how many times we need to repeat something.
- Using the **break** statement we can break out of a loop.
- Using the **continue** statement we can skip an iteration.

```
// For loop
for (int i = 0; i < 5; i++)
    cout << i << endl;

// Same algorithm using a while loop
int i = 0;
while (i < 5) {
    cout << i << endl;
    i++;
}

// Same algorithm using a do-while loop
i = 0;
do {
    cout << i << endl;
    i++;
} while (i < 5);

// Range-based for loop
int numbers[] = { 1, 2, 3 };
for (int number: numbers)
    cout << number << endl;
```