Figure 20.0 A simpler problem—*searching*.

For a simpler problem in which choice of algorithm is crucial, let's look at list searching.

Suppose we maintain a list of our friends so that we can look up their phone numbers:

```
class Friend {   …
    public String getName ( ) {   …   }
    public String getPhoneNumber ( ) {   …   }
}

class Rolodex {   …
    private Friend[] list;
      …
    public Friend find (String name) {   …   }
}

public class Test {
    public static void main (String[] args) {
        Rolodex directory = new Rolodex(   …   );
          …
        Friend f = directory.find("Richard");
        System.out.println(f.getPhoneNumber());
    }
}
```

We'll concentrate on the method **find( )**, the purpose of which is to *search* the list of friends.

```
/**
 * find:  return the Friend with a name matching the
 *    parameter name, or null if no such Friend is found
 */

public Friend find (String name) {

    // a simple implementation:  linear search
    for (int i = 0; i < list.length; i++)
        if (list[i].getName( ).equals(name))     // COMPARISON
            return(list[i]);
    return null;
}
```