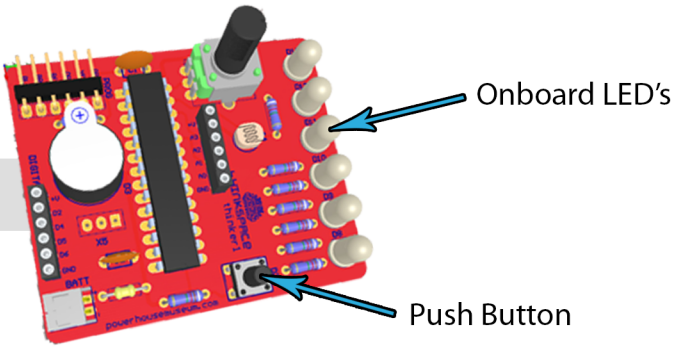
Thinker1 Push Button

Activity Two

What are we doing?

We will convert our button into a switch so that we can press once to turn on an LED and again to turn it off.

What parts of the board will you be using?



What files will we be using?

Thinker1 → Activity Files → PushButton2.ino

Instructions

Step 1

Open the file: PushButton2.ino

Step 2

Look for the comment //boolean (or true/false) variables and insert this code underneath:

```
boolean lastButton = LOW;
boolean ledOn = false;
```

These are our boolean variables, notice that they can be either HIGH/LOW, true/false or even just 0/1.

Step 3

Look for the comment //read button value and insert this code underneath:

```
if (digitalRead(buttonPin) == HIGH && lastButton == LOW)
{
  ledOn =! ledOn; //This inverts (switches) the value
  lastButton = HIGH; //This stores the last button state
}
else
{
  lastButton = digitalRead(buttonPin); //Store the state
}
```

Our button will now behave as a switch, upload your program and give it a try.

Step 4

You may have noticed a problem. Using our button in this way is a little like turning a hose off at the tap, sometimes there is still some electricity that will leak through at the last minute just like water in a hose. The problem can be solved using a technique called *debouncing*. We've included the file ***PushButton3.ino*** which solves the problem. Study the code to learn more about how *debouncing* works.

Program Logic