# Welcome to Mission: Mars Humidity

You may know humidity is the measurement of the amount of water vapor in the air. Relative humidity measures the amount of water in the air in relation to the maximum amount of water vapor (moisture). The higher the temperature, the more water vapor the air can hold.

On Mars, humidity is directly connected to temperature fluctuations. At night, relative humidity levels can rise to 80 to 100 percent, with the air sometimes reaching atmospheric saturation (meaning humidity levels are at their max and no more water vapor can be absorbed). The daytime air has less humidity and is drier because temperatures are warmer.

Your Mission

Using the Weather Click, your mission is to report back to the base station the relative humidity on Mars.
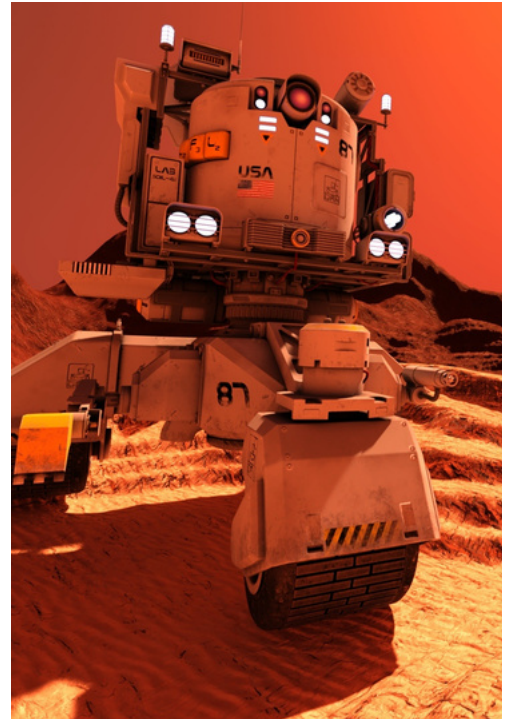
Space.com (2017, September 29). What is the temperature of Mars. https://www.space.com/16907-what-is-the-temperature-of-mars.html
NASA. (2021, February 2). Mars facts. https://mars.nasa.gov/all-about-mars/facts.
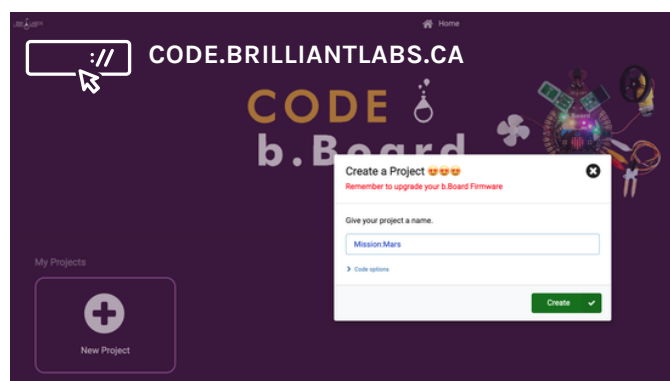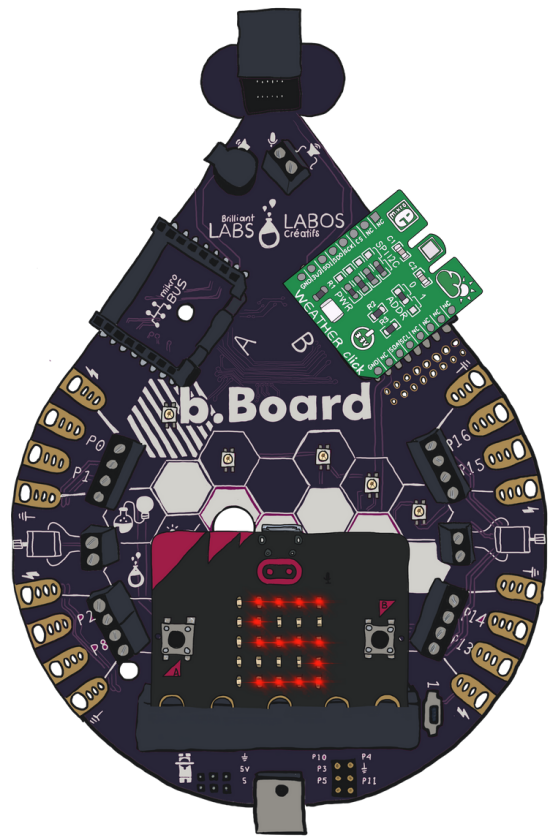
Weather Click

So how can we use the weather click on our rover? Well, let's start by plugging in the weather click to our b.Board slot on the right with the "B" by it.

If you don't know much about the b.Board, or how to power it or plug anything in, take a minute to go through our great Getting Started Guide before you go any further!
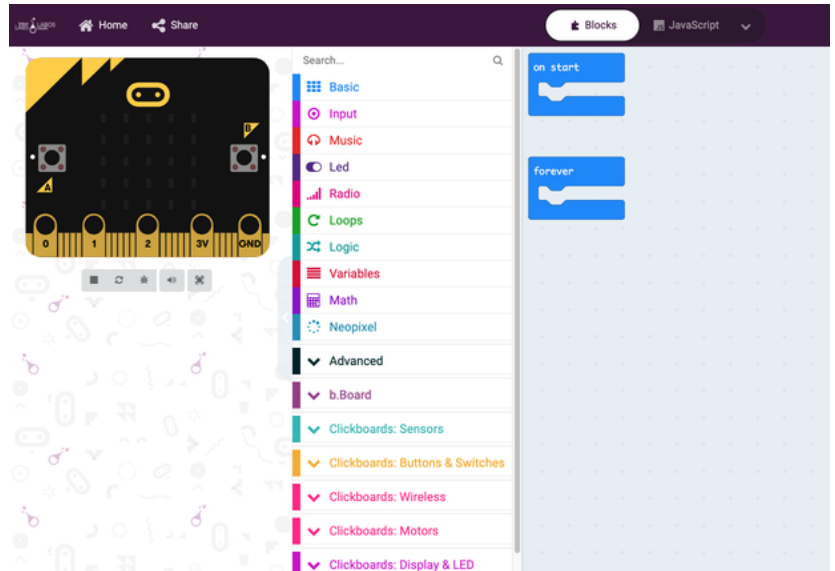
Getting Started Guide

Now that we have it plugged in, let's go to code.brilliantlabs.ca and start testing it out! Create a new project or open one that you've already created. In my case, I selected the new project + icon and gave it the name Mission:Mars.

Space.com (2017, September 29). What is the temperature of Mars. https://www.space.com/16907-what-is-the-temperature-of-mars.html
NASA. (2021, February 2). Mars facts. https://mars.nasa.gov/all-about-mars/facts.

As soon as you select "create", your new project will open. You should see something like this ➡

On the left-hand side of the screen, you can see the toolbox. This is where we keep all of the blocks of code you need to control your micro:bit and b.Board.

If you're using a Click Board™ you'll see there is a section of dropdown toolboxes where you can find the exact Click board™ you're using. In this case, we are using the Weather click which "senses" weather, so you can find it under the ClickBoards: Sensors toolbox category here:
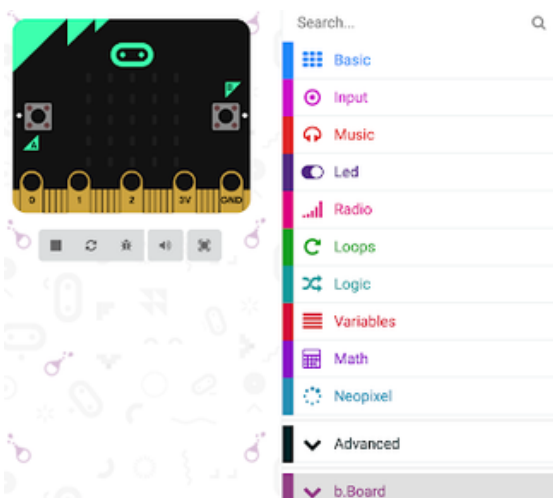

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Brilliant LABS / LABOS Créatifs
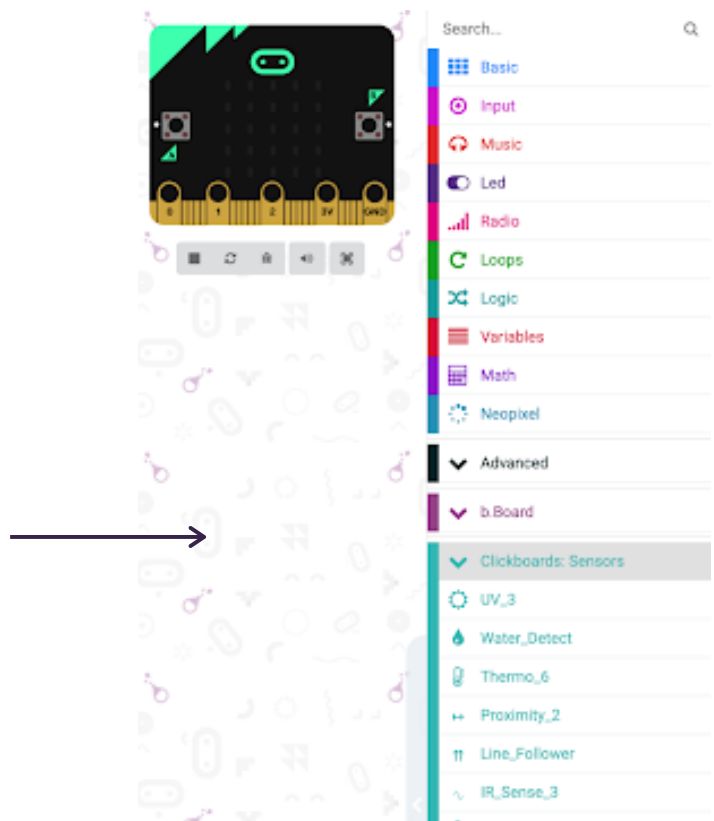
When you open up the toolbox, you'll see a bunch of blocks to let you control your weather click. The first and most important one is the one on top. You'll find a similar one when you expand any Click board™ toolbox. It tells the b.Board which click slot you plugged your Click board™ into.
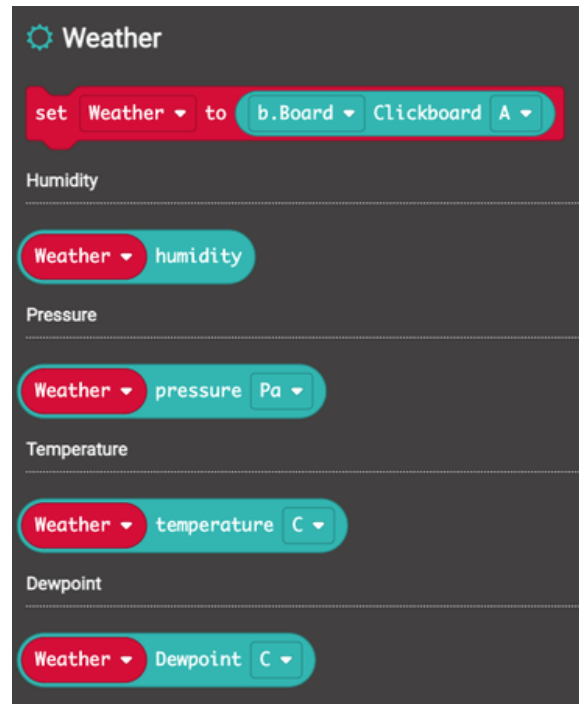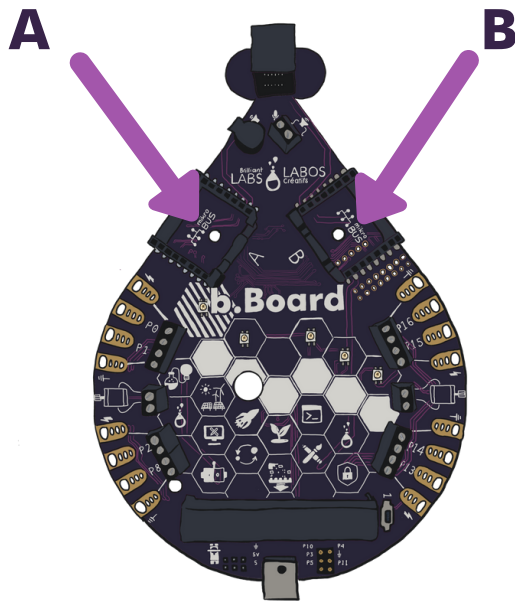
Since we only need to tell the b.Board one time where we plugged it in, we are going to drop this block into the "on start" block. The on start block runs all of the blocks you snap into it just one time, when you first power on your b.Board.
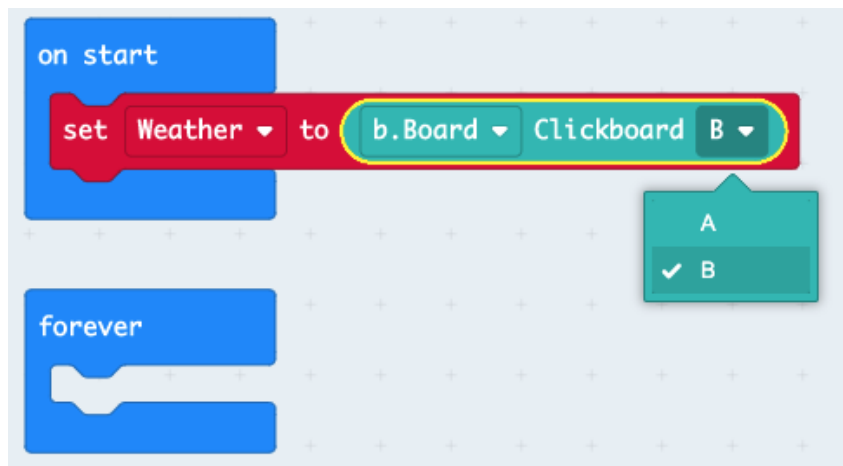

So let's take this block and drop it in our "on start" block and "tell it " that we plugged the Weather click into the Clickboard B slot.

Displaying the Data

The easiest way we can see the weather click data is to display it on the micro:bit LED screen. To do that, grab the "show number" block as shown below.

Now drop it in your forever loop and add in the Weather click temperature:

Program your micro:bit and watch the temperature display on the LED screen over and over.
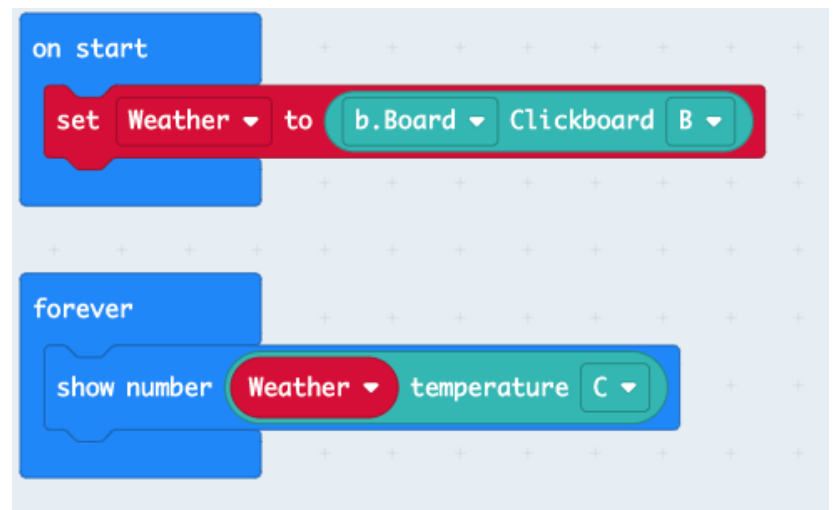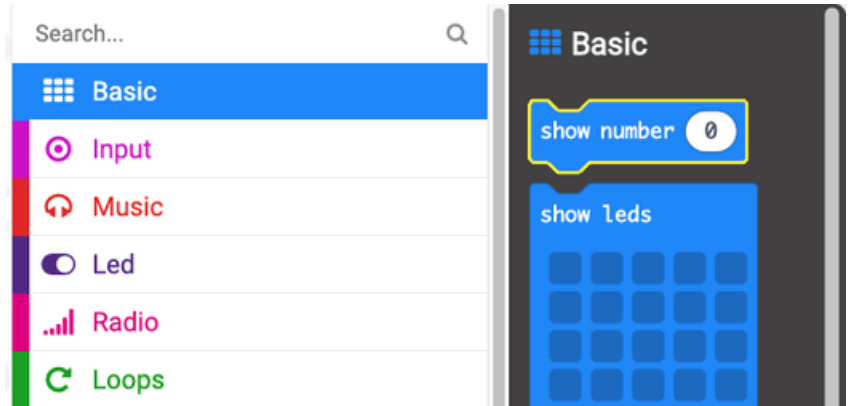
What next?

Try experimenting with the humidity, pressure and dew point blocks. See what happens when you display each of those. Think about how you can tell your rover to measure each and every one. Once you've got it all sorted out, head on over to our WiFi guide to learn how you can connect your rover to our Brilliant Labs Cloud (cloud.brilliantlabs.ca) and get your rover ready to send the data from "Mars" back to "Earth". :)