

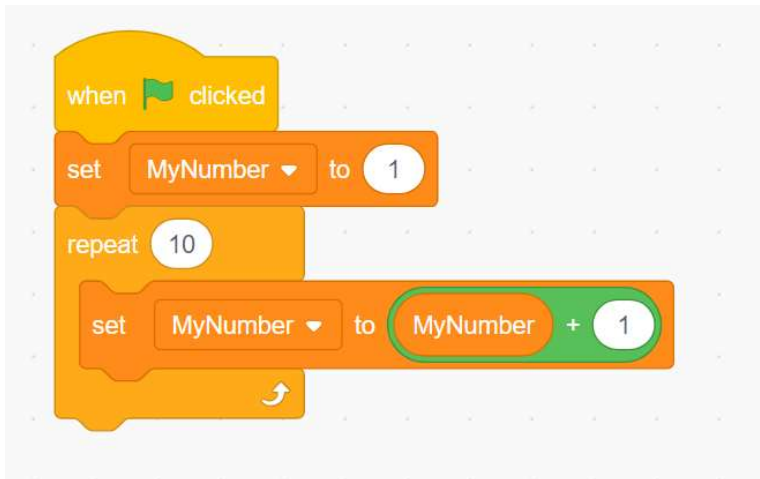
Math with Computers!

Many real-world math problems would take too long to do if we had to work them out by hand or even with a calculator. Fortunately, we can use coding to tell the computer how to do the problem for us.

① In the example below, "MyNumber" is a VARIABLE: it's like a box that always has a number in it:

MyNumber 0

See if you can figure out what MyNumber will change to after the flag is clicked if the computer follows the instructions below.



```
when clicked
  set MyNumber to 1
  repeat 10
    set MyNumber to MyNumber + 1
```

Answer:

Now go to scratch.mit.edu/create and try to make this code. I will help you.

② Now suppose you want to do the following:

- start with the number 41
- add the number 7481
- repeat the previous step so we add this same number 9816 times.

Change the code you made to find the answer.

ANSWER:

③ Now try to solve this problem: there are 137 bacteria. Every hour, each one divides in half so we have twice as many bacteria as before. How many bacteria will there be after 24 hours?

ANSWER:

④

Total 0 Number to add 0

Can you figure out what the variable Total will be once we click the flag?

ANSWER:

Try to make this code and check your answer.

```
when clicked
  set Total to 0
  set Number to add to 0
  repeat 10
    set Number to add to Number to add + 1
    set Total to Total + Number to add
```

⑤ By changing this code, can you figure out what $1 \times 2 \times 3 \times 4 \times 5 \times 6 \times 7 \times 8 \times 9 \times 10 \times 11 \times 12 \times 13 \times 14 \times 15 \times 16 \times 17 \times 18 \times 19 \times 20$ is?

ANSWER: