

Coding Some Better Vision

This activity was created by Shannon.

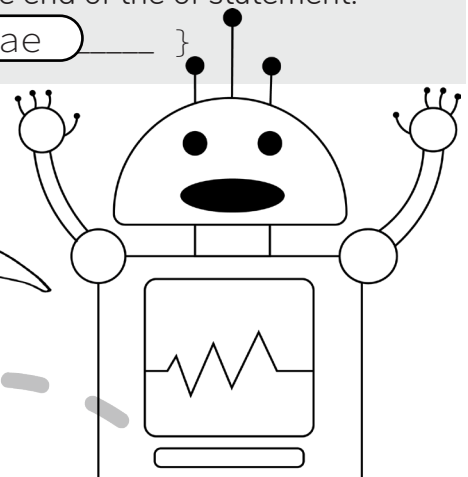
Our eyes are a very powerful organ in our body! We can use our eyes to look up at the night sky and see specks of stars that are trillions of kilometers away! However, our eyes do have limitations. There are all sorts of things that are all around us that we can't see with just our eyes, such as germs and bacteria. That's when certain magnification tools come to our aid! Magnification is the act of making something appear bigger without actually changing its physical size. Common examples of tools that magnify are telescopes, microscopes, binoculars and magnifying glasses. The science behind how they work is that these tools use a special lens, or a combination of multiple lenses, to bend light at an angle to increase the size of the image that is sent to your eye. This increase in size and allows you to see objects easier!

Now that we know how magnification works, let's code a better vision! We are going to be using Boolean Logic to create conditional statements. This might sound scary, but don't worry all of the options on are on page 11 for you to cut out and paste onto the next page.

1. To start you will be given a variable. For this activity, the variable will be what you are looking at.
 - E.g. `variable == pond water`
2. Next you will be given an "if" statement, this is where you will decide which magnification tool is going to help you get a better look at what you are looking at. You will cut out the code block from page 11 that has the tool you want to use and paste it in the line.
 - E.g. `if magnification_tool == microscope {`
3. On the next line there is a boolean statement about whether or not this tool is helping us see better. Boolean means there is only two options: true or false. Hopefully we are able to find the right tool each time so that this statement is always true. Cut out the true or false coding block from page 11 and paste it at the end of the boolean statement.
 - E.g. `can_see_better = true;`
4. And on the last line we need to figure out what this tool is going to help us see better. So cut out the coding block on page 11 that is the object that you will see better using that tool in that environment (variable), and paste it at the end of the of statement.
 - E.g. `what_we_see_better = algae }`

So when we put this sample code together it looks like this:

```
variable == pond water;  
if magnification tool == microscope {  
    can_see_better = true;  
    what_we_see_better = algae }
```



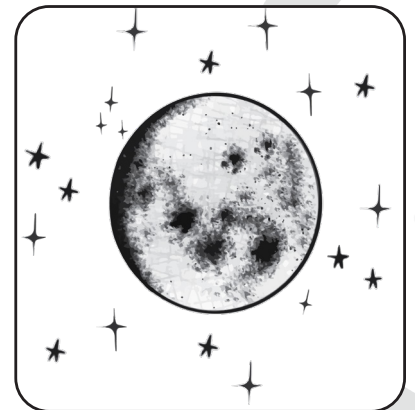
Date: _____

Name: _____

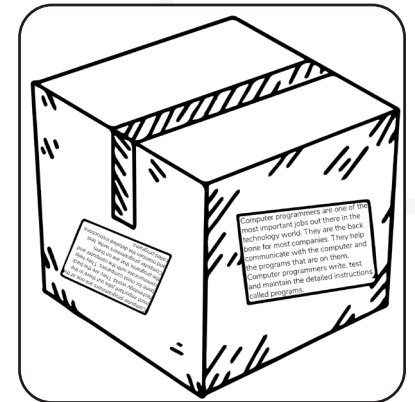
```
variable == a forest;  
if magnification_tool == _____ {  
    can_see_better = _____;  
    what_we_see_better = _____}
```



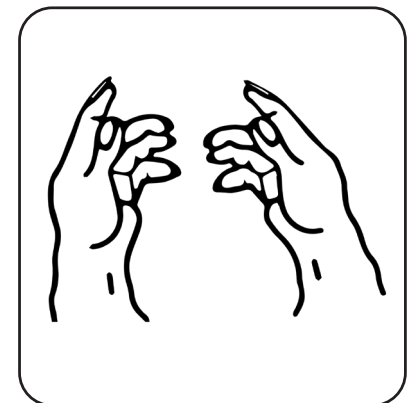
```
variable == the sky at night;  
if magnification_tool == _____ {  
    can_see_better = _____;  
    what_we_see_better = _____}
```



```
variable == small font written on a package;  
if magnification_tool == _____ {  
    can_see_better = _____;  
    what_we_see_better = _____}
```



```
variable == our hands;  
if magnification_tool == _____ {  
    can_see_better = _____;  
    what_we_see_better = _____}
```



microscope

true

octopus

false

false

true

swim goggles

telescope

false

wires

squirrels

bacteria

true

sun glasses

true

binoculars

false

magnifying glass

words

stars

This page was intentionally left blank because the other side is meant to be cut up.