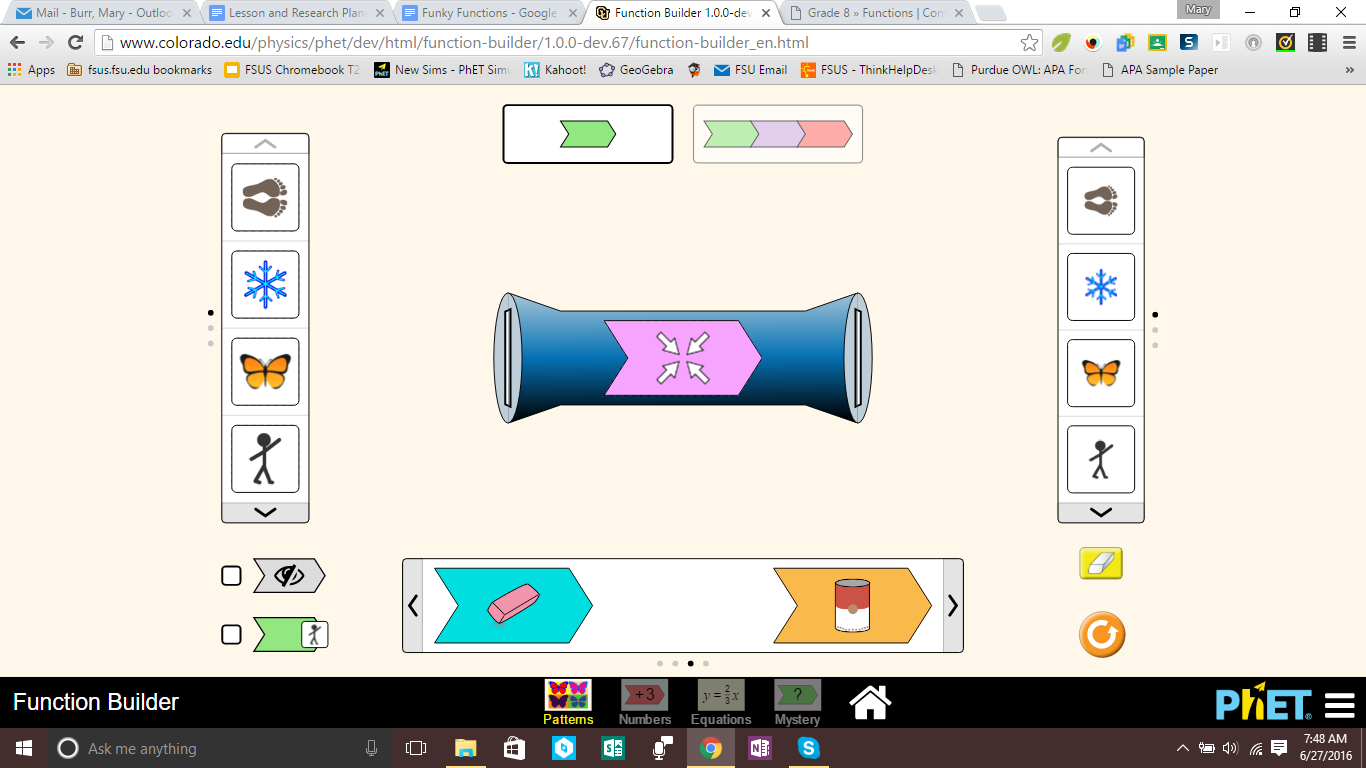
# **Funky Functions! Name:\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Learning Goals:**

* Describe properties of transformations(changes in size, shape, orientation).
* Relate functions to transformations.
* Create definitions/working understanding of input, output, function rule, reflection, rotation, dilation.

1. **Explore** the Function Builder simulation for a few minutes, building whatever functions you choose. Write down 1-3 observations you have about building a function.

2. **Label** the parts of this function: **input, output, function rule**.



3. **Describe** how each function rule **transforms** the shapes.

|  |  |  |
| --- | --- | --- |
| Function rule | What happens? Check any that apply. | Describe/name the function in your own words. |
|  | [ ]Changes size [ ]Changes direction  [ ]Changes shape [ ]Changes color |  |
|  | [ ]Changes size [ ]Changes direction  [ ]Changes shape [ ]Changes color |  |
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4. Perform the **transformation**, and **check yes or no** in the table.

|  |  |  |
| --- | --- | --- |
| Input Shape | Function Rule | Output shape changes? |
|  |  | [ ] Yes [ ] No |
|  |  | [ ] Yes [ ] No |
|  |  | [ ] Yes [ ] No |
|  |  | [ ] Yes [ ] No |

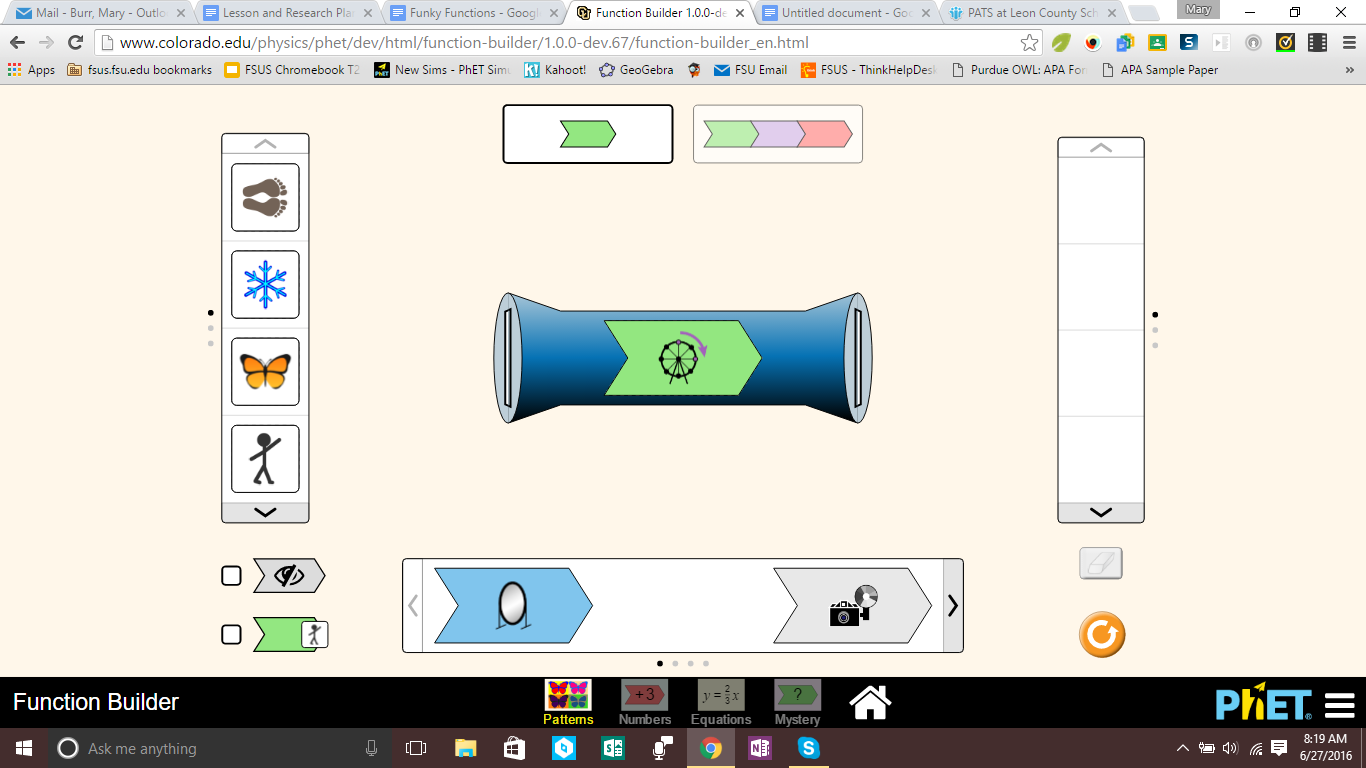
5. **Explain** why some shapes change when **reflected by the mirror** and others do not.

6. Perform the **transformation**, and **check yes or no** in the table.

|  |  |  |
| --- | --- | --- |
| Input Shape | Function Rule | Output shape changes? |
|  |  | * Yes * No |
|  |  | * Yes * No |
|  |  | * Yes * No |
|  |  | * Yes * No |

7. **Explain** why you think some shapes change when **rotated by the Ferris wheel** and others do not.

8. What do you think the **difference** is between these two transformations?

9. **Describe** what happens to the shape when you use this **sequence of transformations.**



1.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(Hint: Use this button for step-by-step help: )

10. Is the output shape from #9 **completely different** than the input shape? How are they **alike**?

11. **Early Finisher** **Challenge**: What happens with each of the mystery functions?!

|  |  |
| --- | --- |
| Mystery A |  |
| Mystery B |  |
| Mystery C |  |