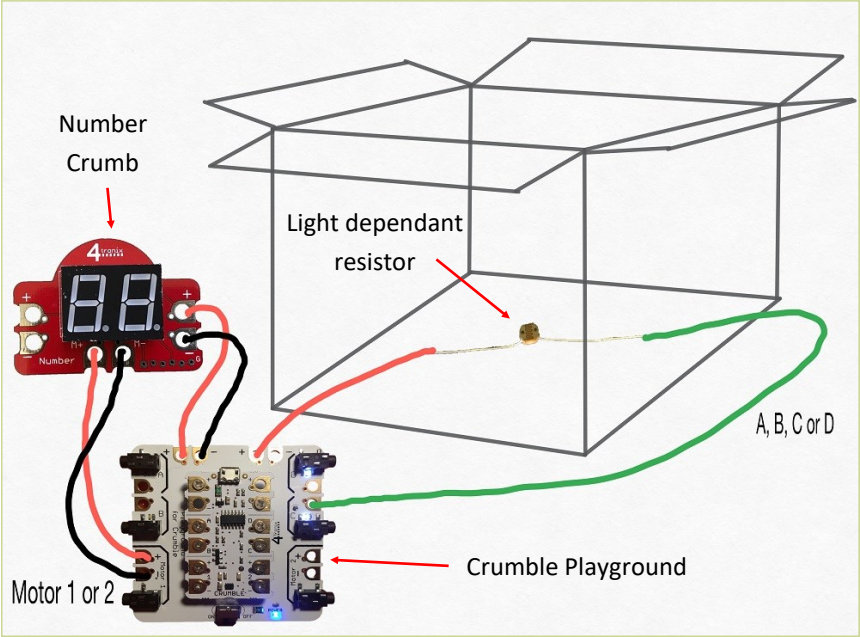
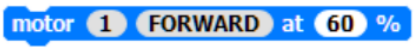
Thinking about the Translucency Meter Name_____ Class ___ TM1

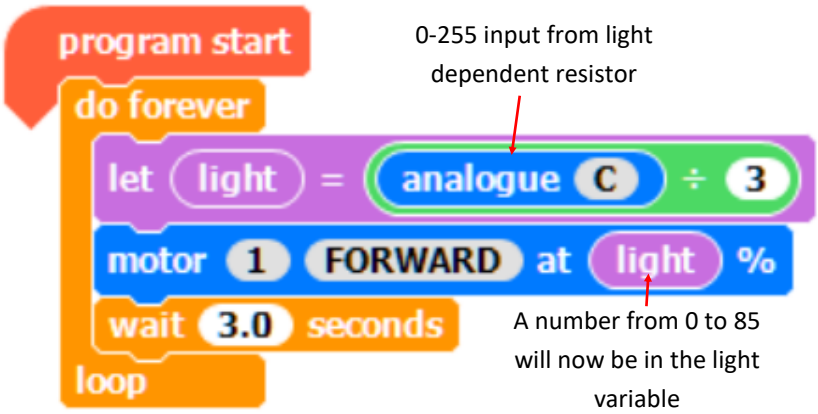
Program Decomposed

Martha connected her Crumble playground, number counter and light dependent resistor together as shown in the diagram on the right.



She tested the number crumb separately using a motor block. When she put 60% in the motor block, it read 60 on the number crumb.





Then she wrote this program. She knew that the light dependant resistor would input between 0 and 255 so she divided it by 3. This means there will only be between 0 and 85 in the light variable, which is a low enough number for the number crumb to display.

Read the information above and study the programming. You can discuss the top part with a partner. When directed answer the questions below.

1, Which block inputs the light dependent resistor sensor information? _____

2, Which block outputs the sensor reading to the number crumb? _____

3, Why is some information divided by 3? _____

4, If the program was changed to read ***motor 2 forward at light %*** would it still work? Give a reason for your answer. _____

5, If the number crumb read between 0 and 999, what would Martha change in her program?

_____

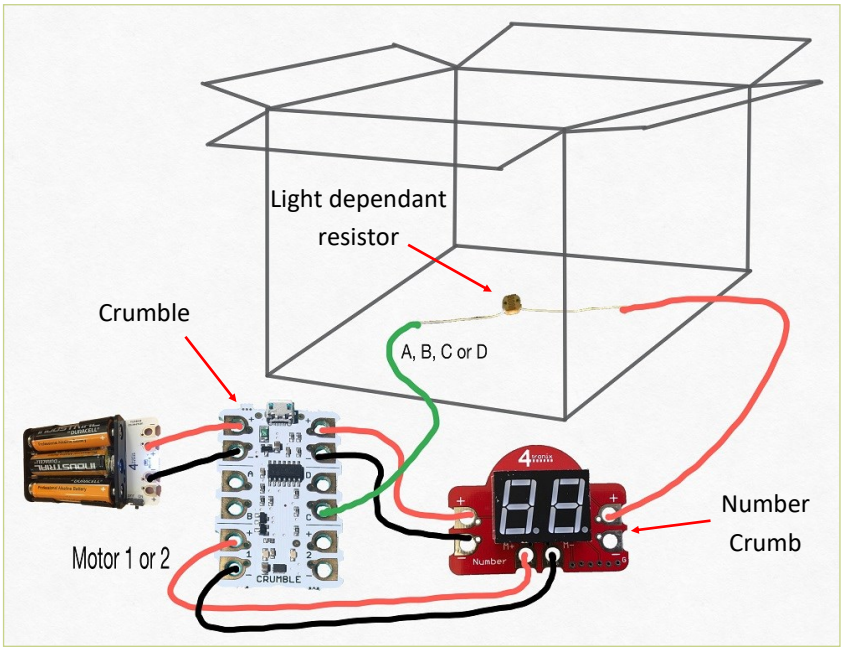
6, Why do you think Martha has added a 3 second wait after the number crumb output?

_____

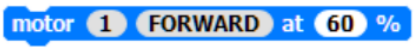
Thinking about the Translucency Meter Name_____ Class ___ TM2

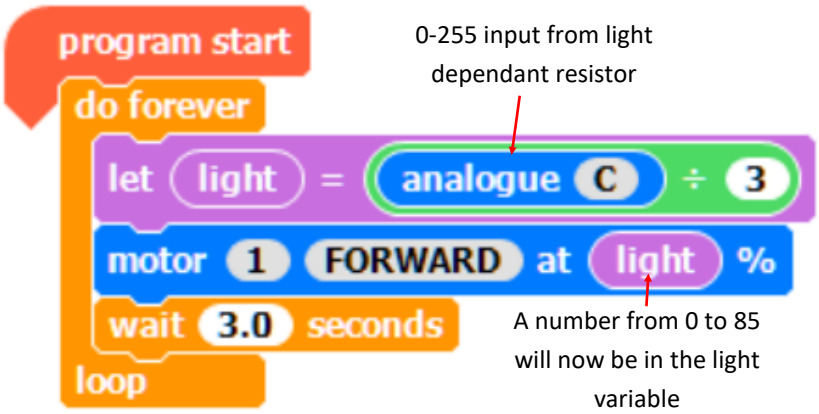
Program Decomposed

Martha connected her Crumble playground, number counter and light dependent resistor together as shown in the diagram on the right.



She tested the number crumb separately using a motor block. When she put 60% in the motor block, it read 60 on the number crumb.





Then she wrote this program. She knew that the light dependant resistor would input between 0 and 255 so she divided it by 3. This means there will only be between 0 and 85 in the light variable, which is a low enough number for the number crumb to display.

Read the information above and study the programming. You can discuss the top part with a partner. When directed answer the questions below.

1, Which block inputs the light dependent resistor sensor information? _____

2, Which block outputs the sensor reading to the number crumb? _____

3, Why is some information divided by 3? _____

4, If the program was changed to read ***motor 2 forward at light %,*** would it still work? Give a reason for your answer. _____

5, If the number crumb read between 0 and 999, what would Martha change in her program?

_____

6, Why do you think Martha has added a 3 second wait after the number crumb output?

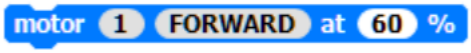
_____

Thinking about the Translucency Meter Name_____ Class ___ TM3

From Algorithm to Code

Martha connected her Crumble playground, number counter and light dependant resistor together as shown in the diagram below.

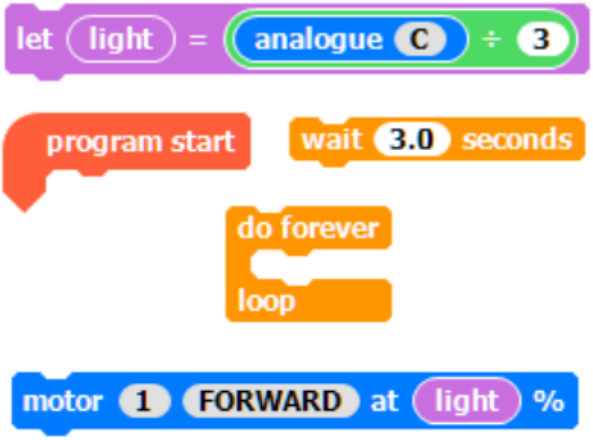
She tested the number crumb separately using a motor block. When she put 60% in the motor block, it read 60 on the number crumb.



Her Algorithm was

1. Take a reading from the light dependant meter (0-255).
2. Divide it by three and put it in a variable called light.
3. Output the result using the variable called light to the number crumb (0-99).
4. Wait three seconds so a human can read the result.
5. Repeat steps 1 to 4 continuously.

These are the code blocks she used



Analogue is the code block that brings information from 0 to 255 from the light dependent resistor sensor into the Crumble. 0 would mean no light and 255 would mean maximum brightness.

The number crumb uses the motor blocks to output a number between 0 and 99.

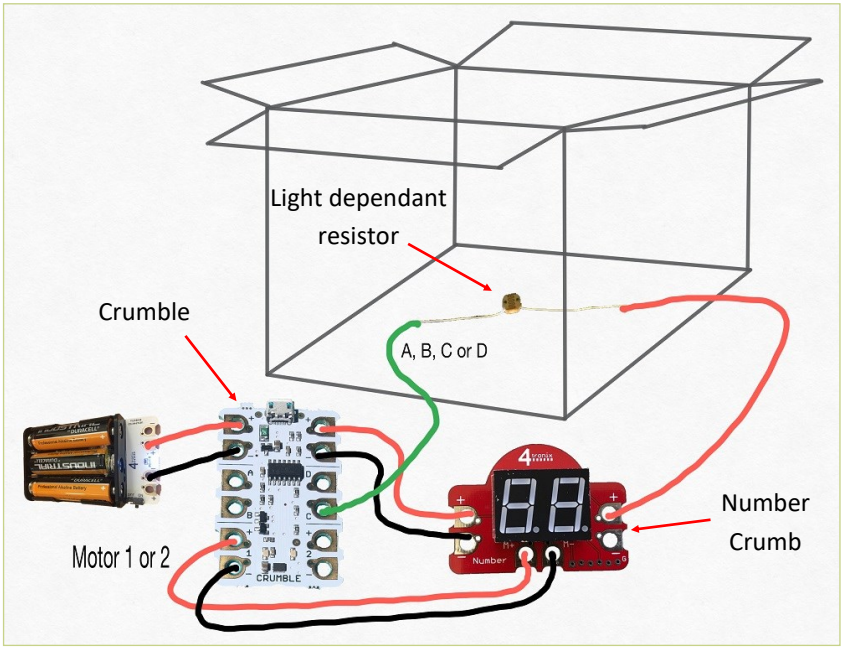
Instructions

Test your number crumb as Martha did.

Can you convert her algorithm into code?

Which blocks go with which steps?

Draw arrows from the code blocks to the algorithm to help you match them

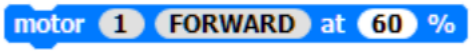


Thinking about the Translucency Meter Name_____ Class ___ TM4

From Algorithm to Code

Martha connected her Crumble playground, number counter and light dependant resistor together as shown in the diagram below.

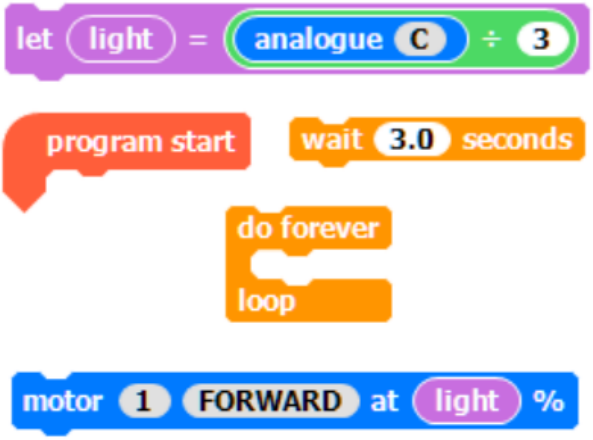
She tested the number crumb separately using a motor block. When she put 60% in the motor block, it read 60 on the number crumb.



Her Algorithm was

1. Take a reading from the light dependant meter (0-255).
2. Divide it by three and put it in a variable called light.
3. Output the result using the variable called light to the number crumb (0-99).
4. Wait three seconds so a human can read the result.
5. Repeat steps 1 to 4 continuously.

These are the code blocks she used



Analogue is the code block that brings information from 0 to 255 from the light dependent resistor sensor into the Crumble. 0 would mean no light and 255 would mean maximum brightness.

The number crumb uses the motor blocks to output a number between 0 and 99.

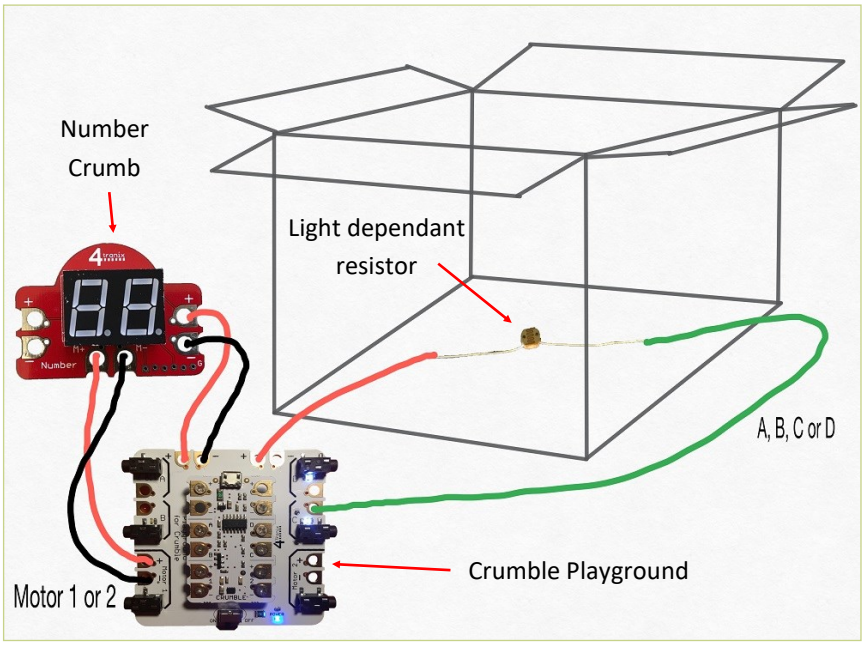
Instructions

Test your number crumb as Martha did.

Can you convert her algorithm into code?

Which blocks go with which steps?

Draw arrows from the code blocks to the algorithm to help you match them



Thinking about the Translucency Meter Name_____ Class ___ TM5

Writing an Algorithm

Big idea

Martha came up with the following big idea

"I want to detect how bright the light is so I can use it to test how much light passes through materials. It would be great if I could get it to output as a number on the number counter."

Her research

The light dependant resistor takes a reading between 0 and 255. 0 is no light, 255 is very bright. It inputs information into the Crumble using an analogue block.

The number crumb outputs between 0 and 99. It uses the motor programming blocks.

Programmers use a variable to pass information from one part of the program to another.
I will call my variable light or brightness.

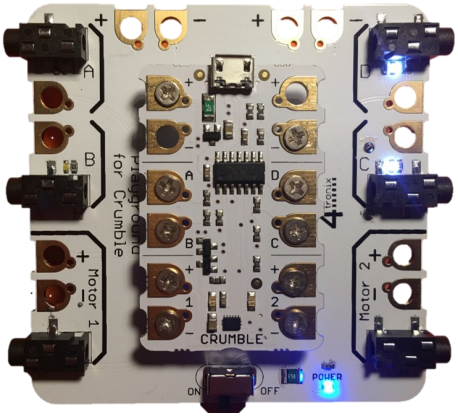
Write or draw an algorithm

Write or draw Martha's big idea as a written algorithm or as a flow chart.

Name _____ Class _____

TM6

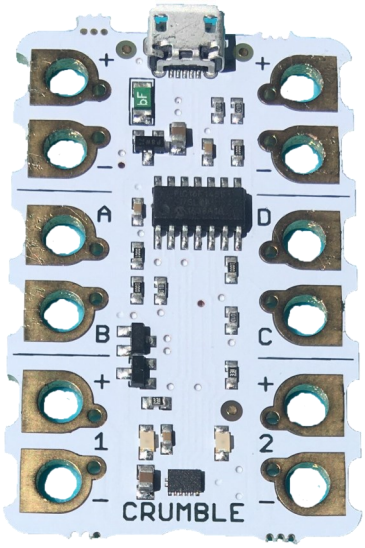
Translucency Meter



Draw your devices and the wires that connect them.

Name _____ Class/Form _____ TM7

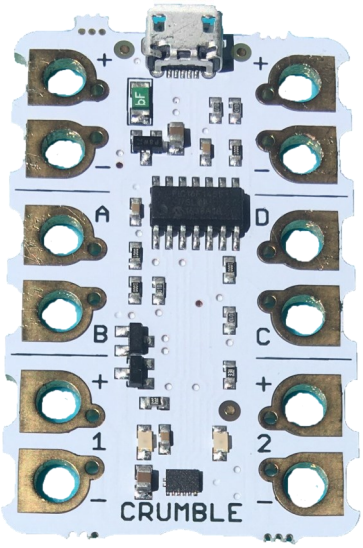
Translucency Meter



Draw your devices and the wires that connect them.

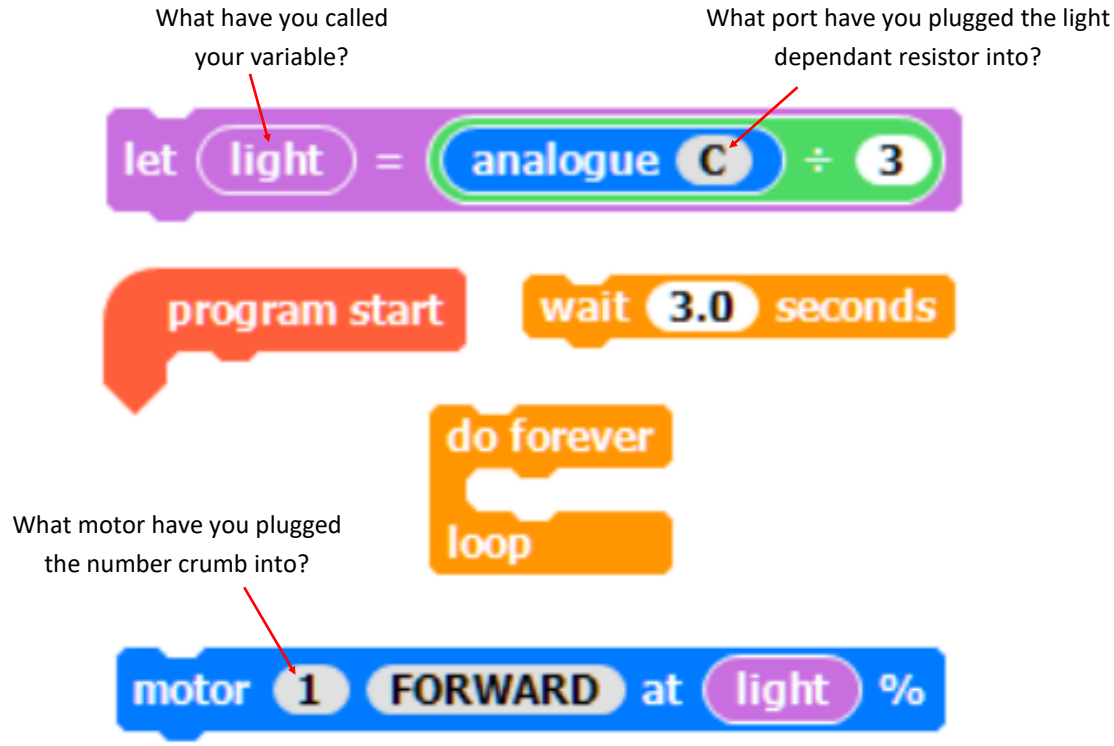
Name _____ Class/Form _____ TM7

Translucency Meter

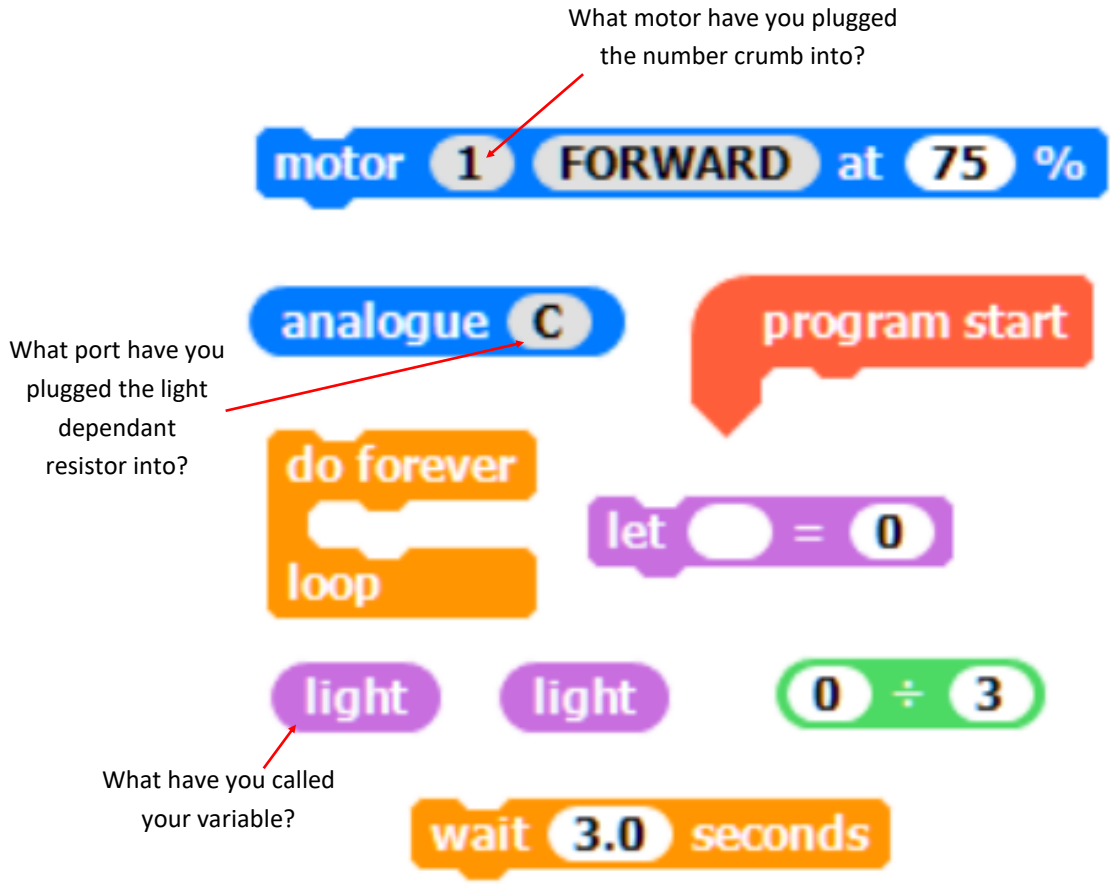


Draw your devices and the wires that connect them.

TM8


What have you called your variable?
What port have you plugged the light dependant resistor into?
let light = analogue C ÷ 3
program start
wait 3.0 seconds
do forever
loop
What motor have you plugged the number crumb into?
motor 1 FORWARD at light %

TM9


What motor have you plugged the number crumb into?
motor 1 FORWARD at 75 %
analogue C
program start
What port have you plugged the light dependant resistor into?
do forever
loop
let = 0
light
light
0 ÷ 3
What have you called your variable?
wait 3.0 seconds

Translucency Meter Assessment Sheet Name_____Class_____

TM10

I did this well

I did this ok or I did this a little

I tried this but it didn't work or I didn't do this at all

I thought through how the programming could work.	
I drew an accurate wiring diagram.	
I wired up my Crumble, number crumb and light dependant resistor.	
I fixed any part of the wiring that wasn't working.	
I created a working program.	
I tested my programming to see if it worked.	
I fixed a programming bug.	
I looked for good computational attitudes in my peers.	
I persevered when aspects needed fixing or debugging.	

Sticker	I got this sticker for
Sticker	I got this sticker for
Sticker	I got this sticker for