Circuits

in context

Age: 4 years

Sex: Male

Weight: 33 pounds

Breed: Mutt

Meet Rex

Rex is a dog. Rex is happy if he has a bone **or** he is sleeping.

We can represent this logic by assigning the 2 conditions to variables and using them as inputs to a logic circuit. So, let's create 2 variables:

B = has bone

S = is sleeping

Draw a circuit representing this scenario.
Hint: it will have 2 inputs, 1 gate and 1 output.

Complete the related truth table:

B	S	Output
0	0	
0	1	
1	0	
1	1	

Scenario B

Rex is getting a bit older.

Rex is happy if:

*He has a bone **or** he is sleeping*

and

*He does **NOT** have his collar on*

How can we represent this as a logical circuit? The new variable, **C = has collar on**

Scenario C

In his twilight years, Rex's happiness is almost complete.

He is happy if:

*He has a bone **or** he is sleeping (but not both!)*

and

*He does **NOT** have his collar on!*

How can we represent this as a logical circuit?

Scenario D

Create your own Rex scenario.

Your classmates will try to create a circuit and truth table representing the scenario. Limit it to 3 inputs only.