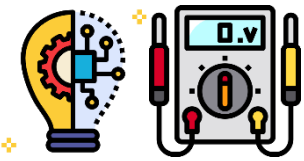


3. PORTAS LÓGICAS

COM CIRCUITOS INTEGRADOS

Portas Lógicas são dispositivos que operam e trabalham com um ou mais sinais lógicos de entrada para produzir uma e somente uma saída, dependente da função implementada no circuito.

Circuitos Lógicos são dispositivos que podem ter uma ou mais portas lógicas, de forma a rentabilizar o espaço em circuitos eletrónicos que se construam com elas.

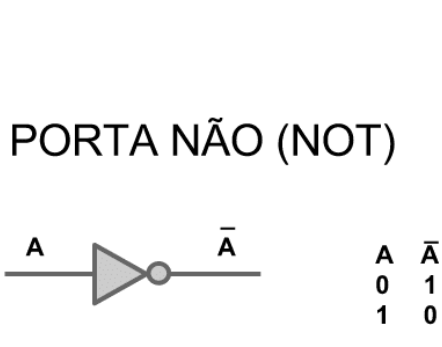
De seguida, para cada porta, apresentaremos a sua simbologia, a sua tabela de verdade, a configuração do circuito lógico que a implementa, o esquema no simulador e uma imagem real de montagem do circuito.

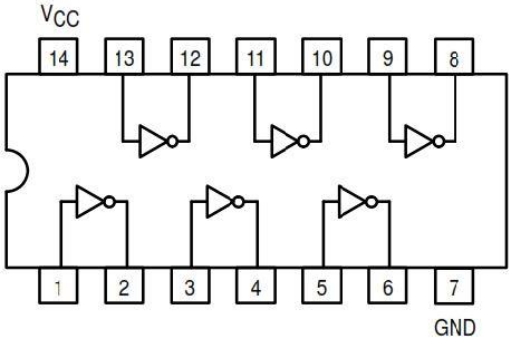
Ana Rodrigues Dália Pereira Joana Pardal

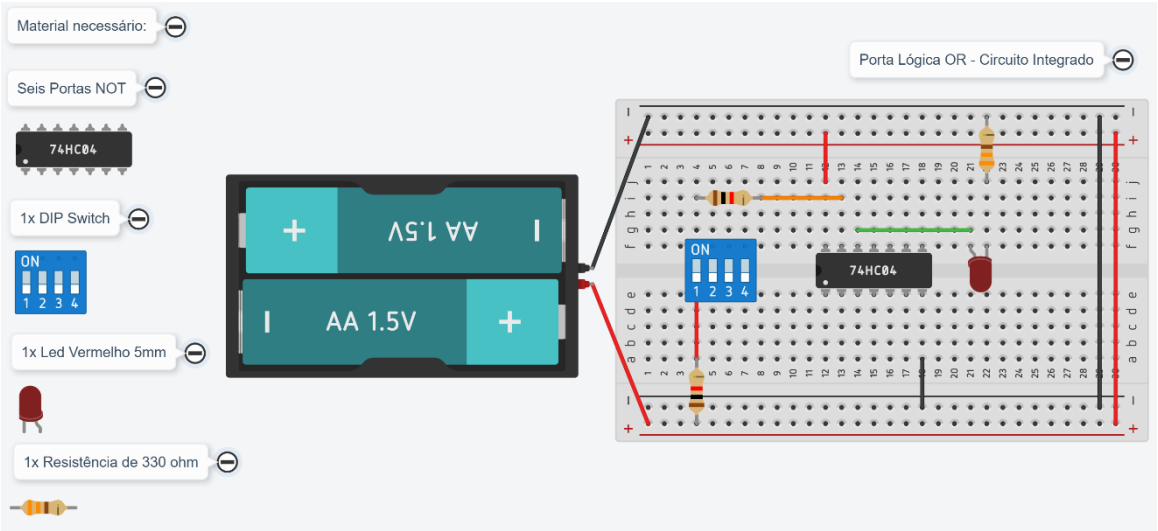
3.1. PORTAS LÓGICAS

COM CIRCUITOS INTEGRADOS

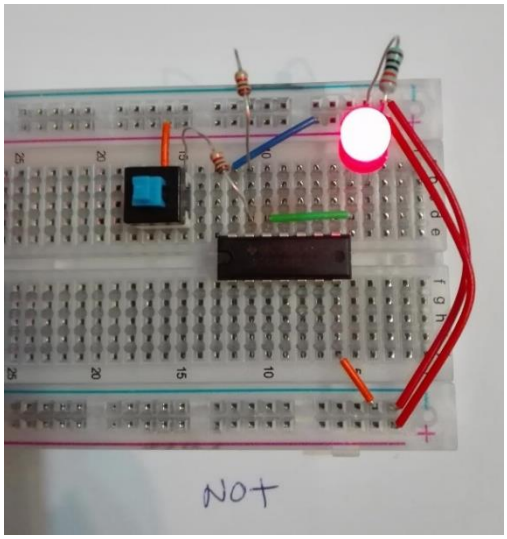
NOT (74xx04):

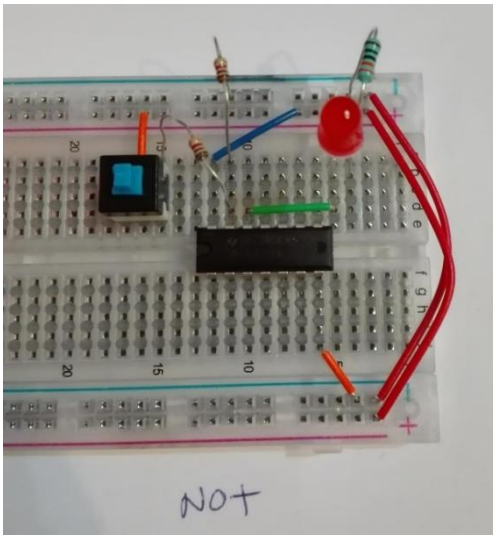






Tinkercad: https://www.tinkercad.com/things/hTFdSCBXfoN





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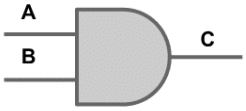
3.2. PORTAS LÓGICAS

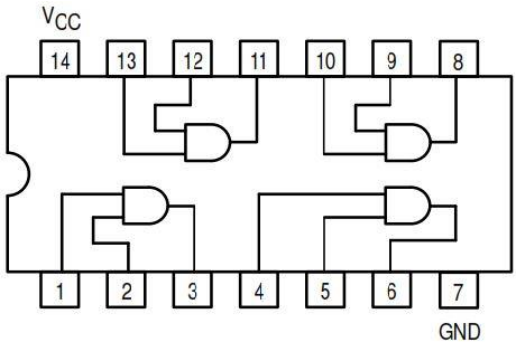
COM CIRCUITOS INTEGRADOS

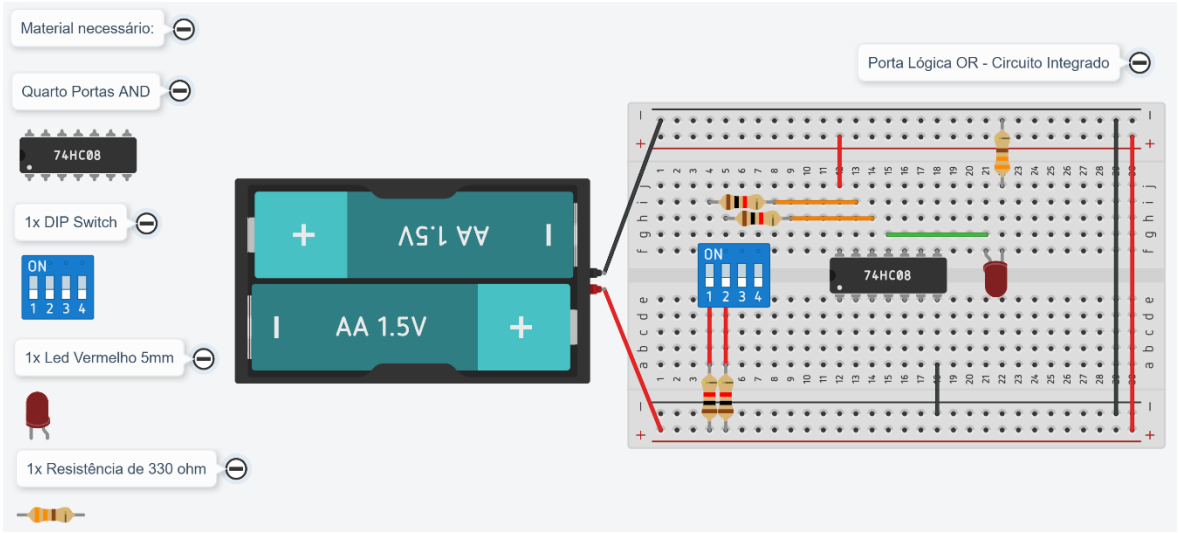
AND (74xx08):

PORTA E (AND) C=A•B

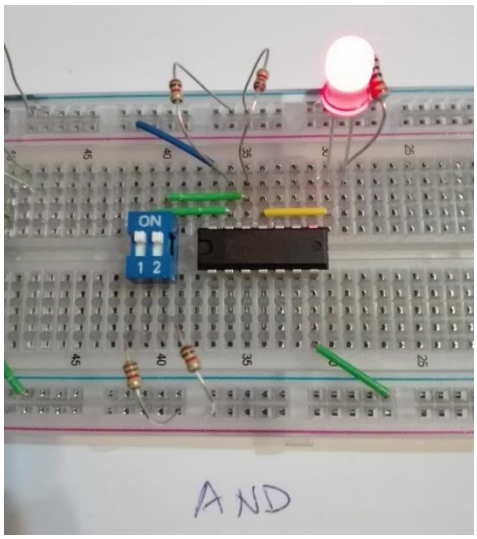


A	B	C
0	0	0
0	1	0
1	0	0
1	1	1





Tinkercad: https://www.tinkercad.com/things/jpO8U6lIPZZ



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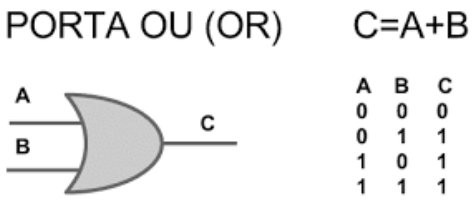
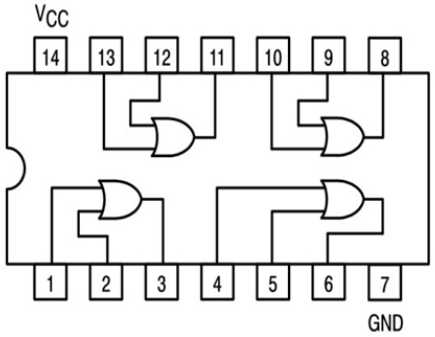
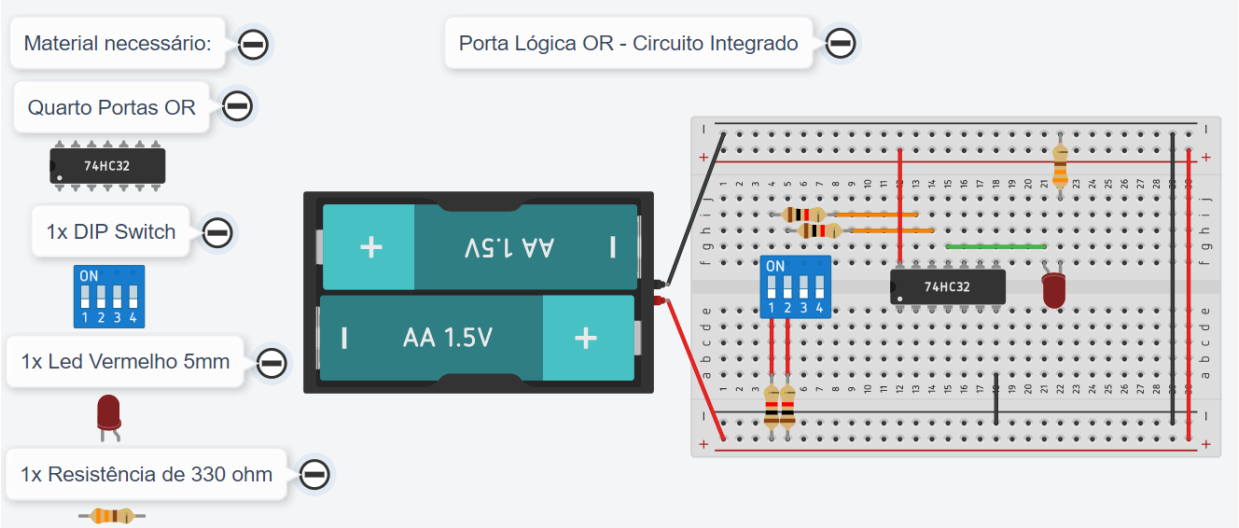
3.3. PORTAS LÓGICAS

COM CIRCUITOS INTEGRADOS

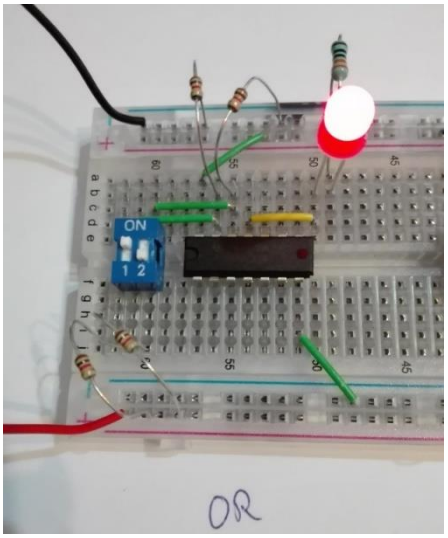
OR (74xx32):







Tinkercad: https://www.tinkercad.com/things/6dohr97NpvM



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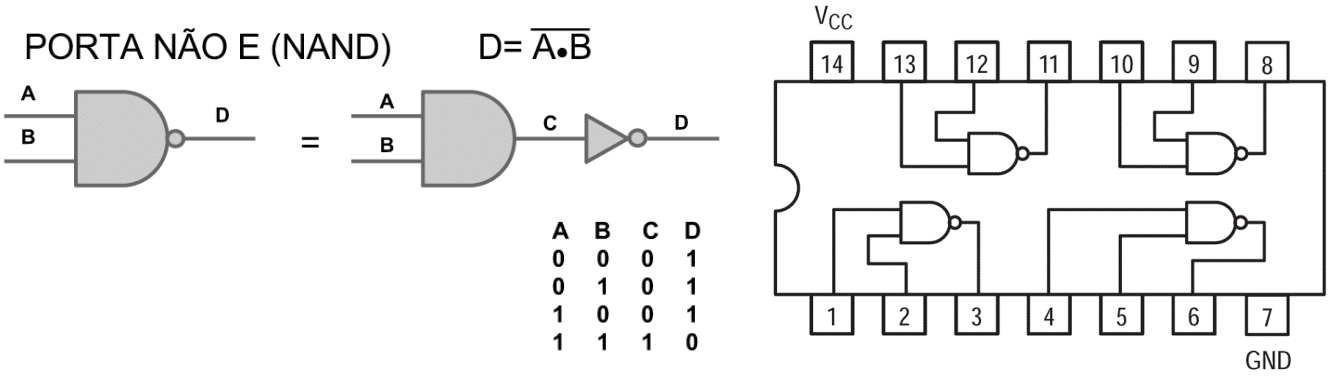
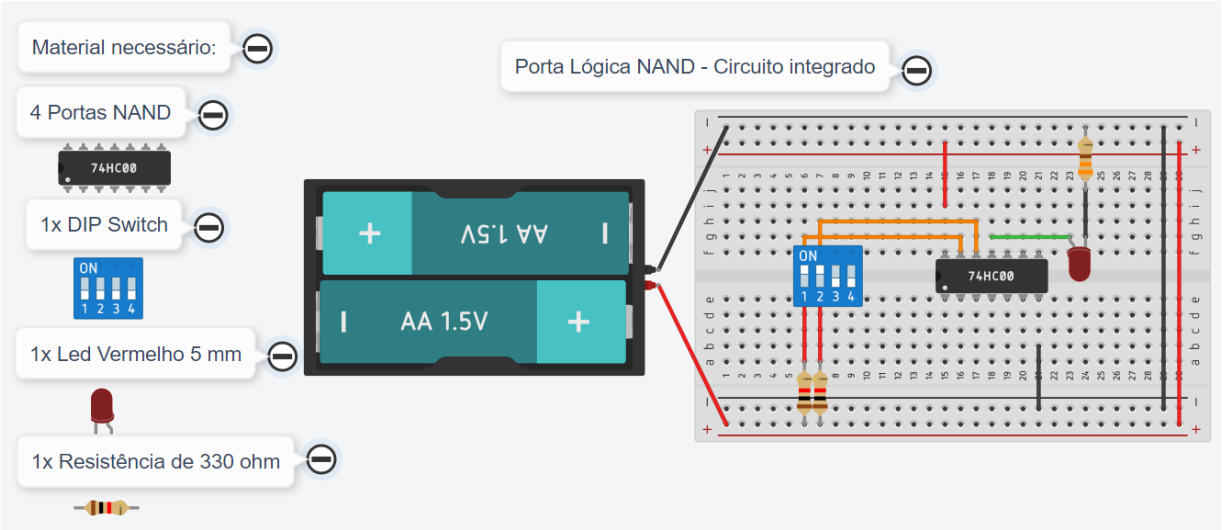
3.4. PORTAS LÓGICAS

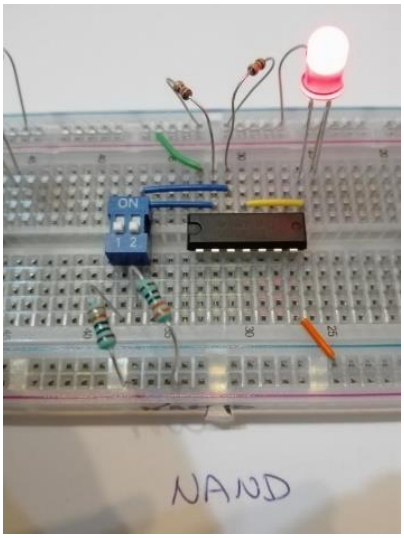
COM CIRCUITOS INTEGRADOS

NAND (74xx00):





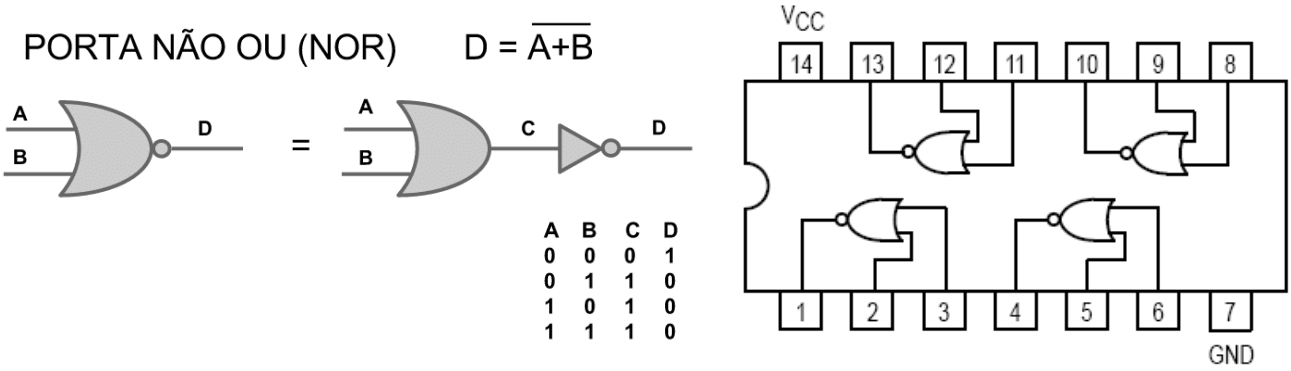
Tinkercad: https://www.tinkercad.com/things/hXD32dnfxqx

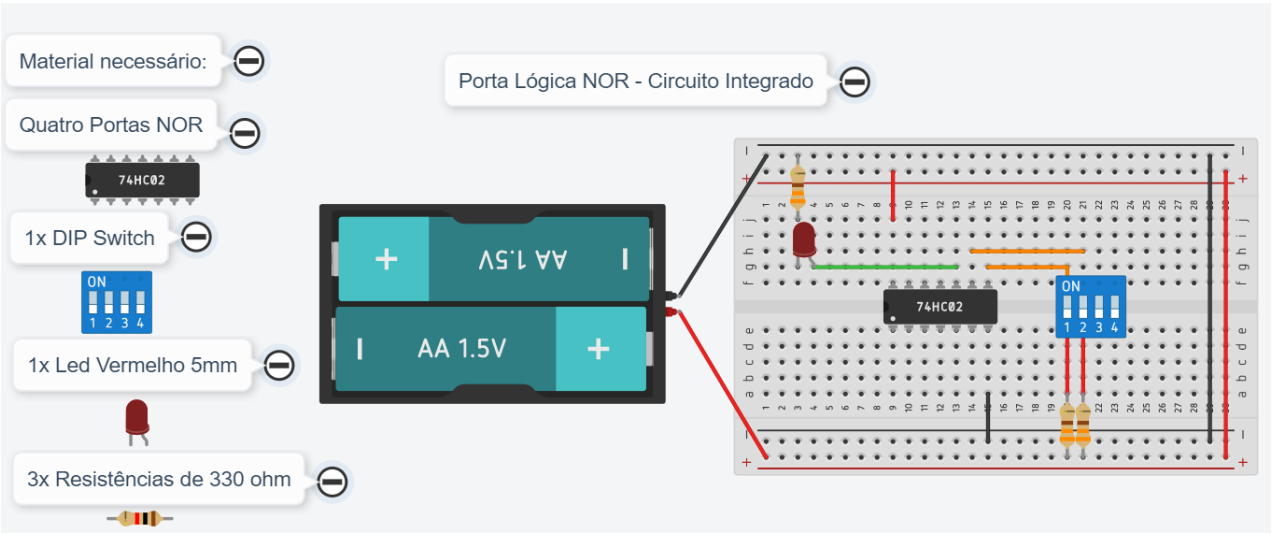


3.5. PORTAS LÓGICAS

COM CIRCUITOS INTEGRADOS

NOR (74xx02):





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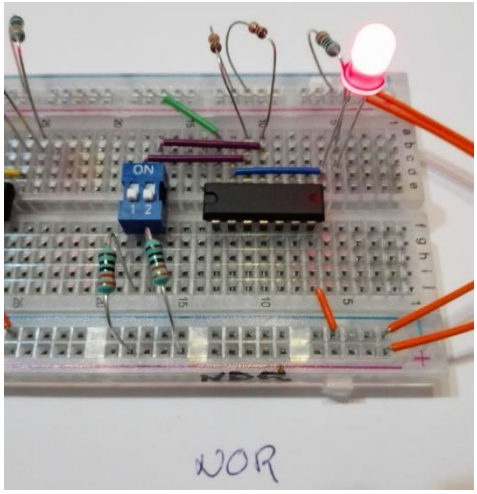

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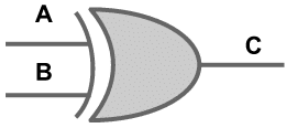
3.6. PORTAS LÓGICAS

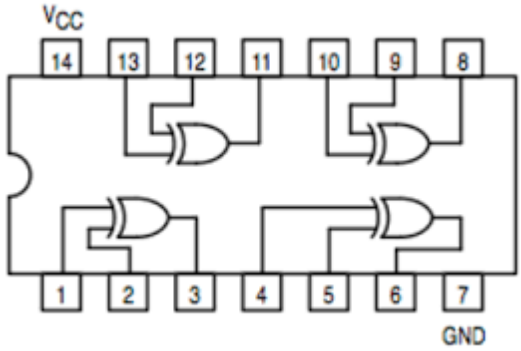
COM CIRCUITOS INTEGRADOS

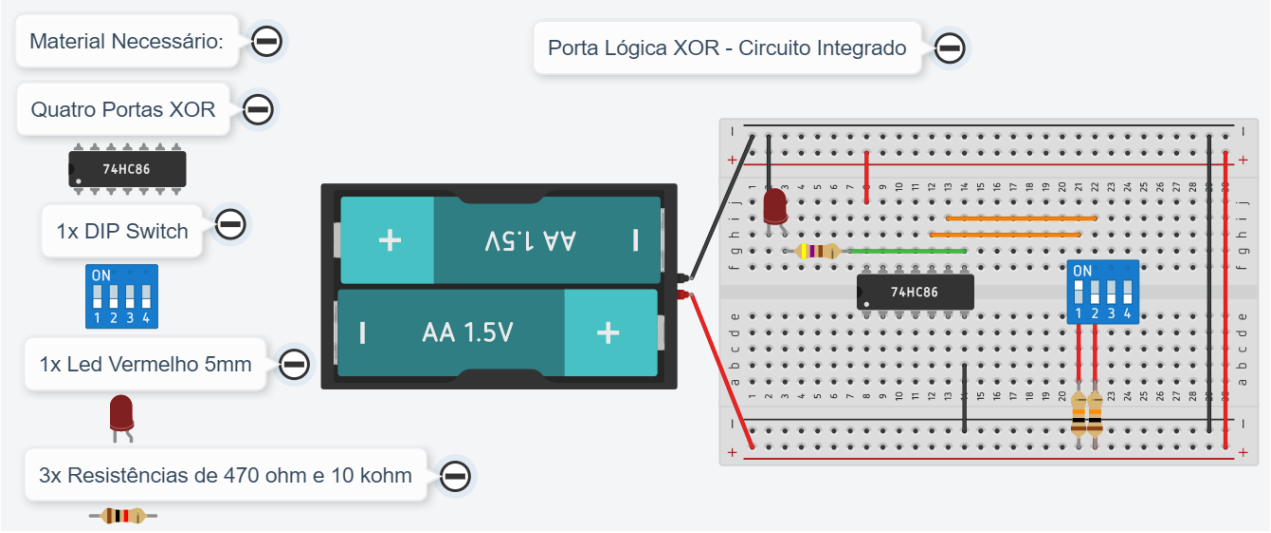
XOR (74xx86):

PORTA OU EXCLUSIVO (XOR) C=A⊕B

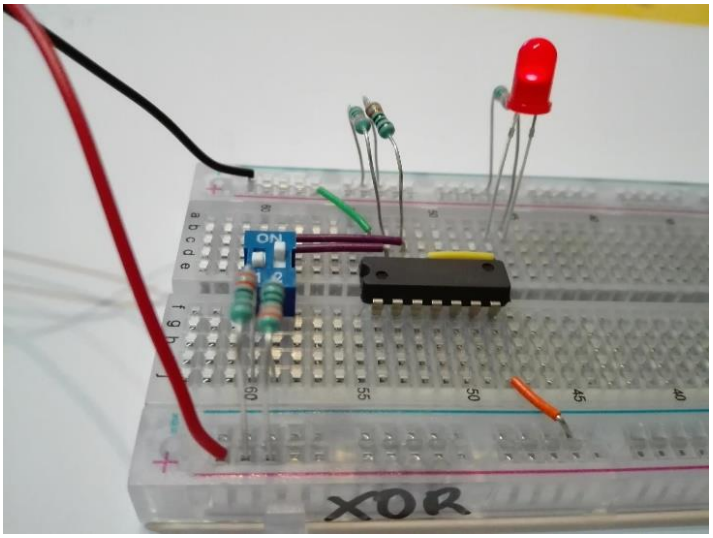


A	B	C
0	0	0
0	1	1
1	0	1
1	1	0





Tinkercad: https://www.tinkercad.com/things/4rc7XmNYrXb



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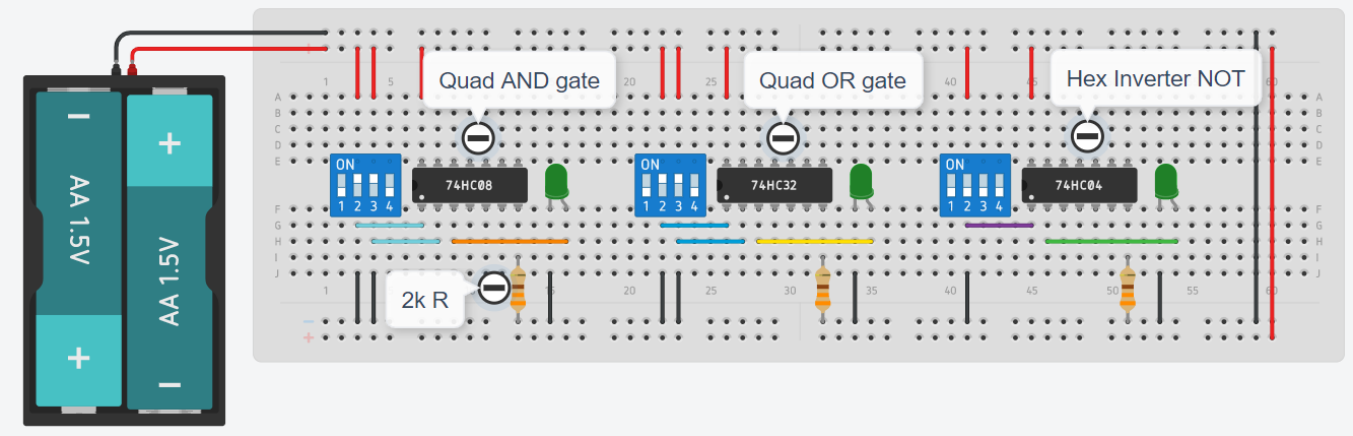
AND, OR e NOT

Para exemplificar o funcionamento das portas, podemos colocá-las todas na mesma *board*:



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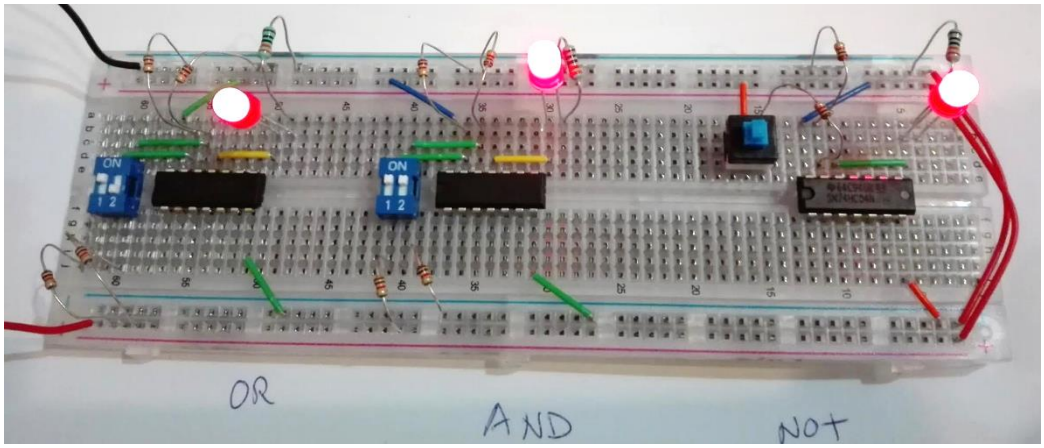
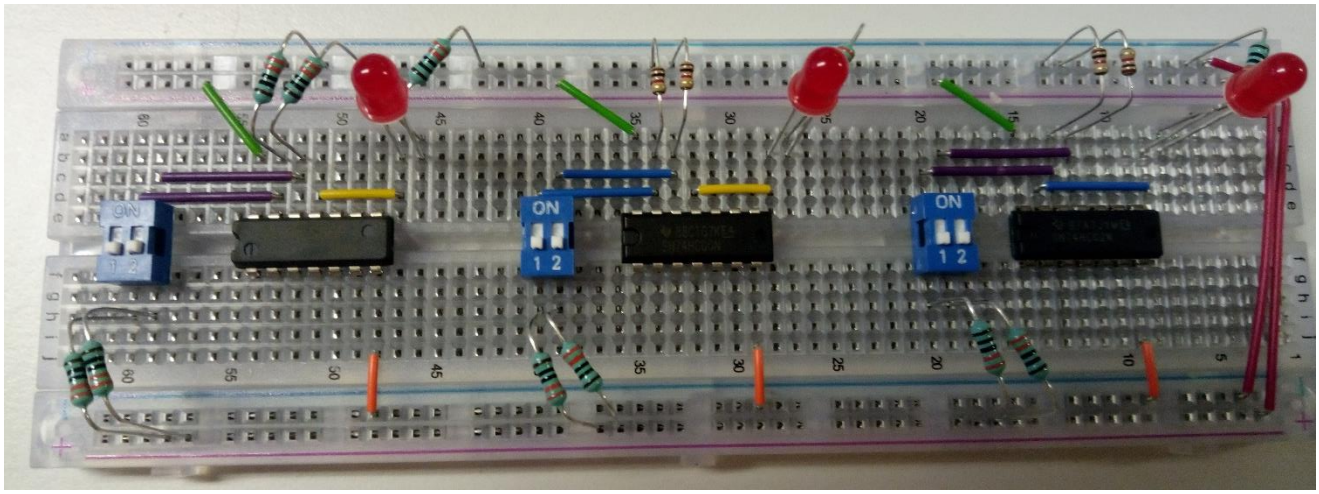


NAND, NOR e XOR



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