Name:_____ Period ___ Date:_____

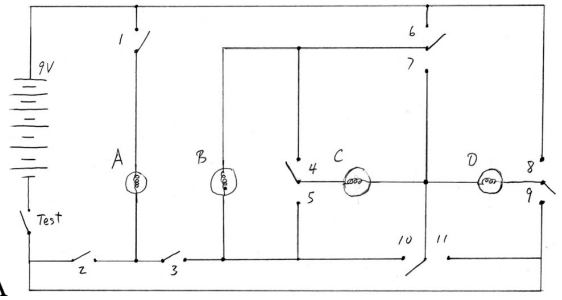
Physics Lab: Foutan Board, Series and Parallel Circuits (CIPT)

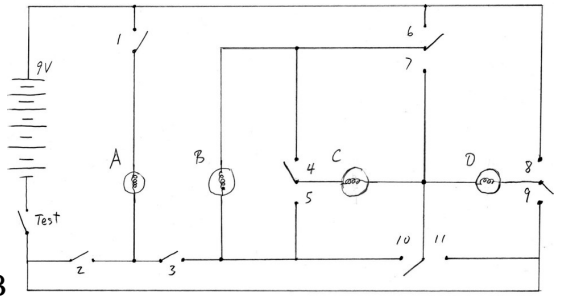
Build various circuits, using a "Foutan Board" from Cornell University. Pomona College.

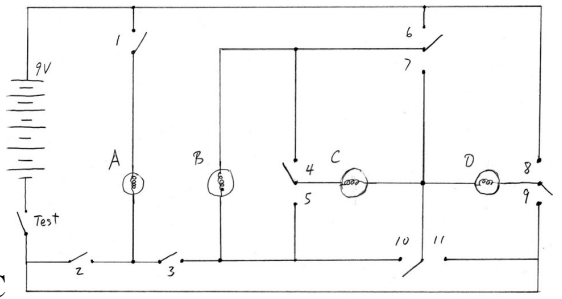
0. Optional board test: Insert switch plugs into 1 2 3 4 6 8 and 11. All four lamps should light.

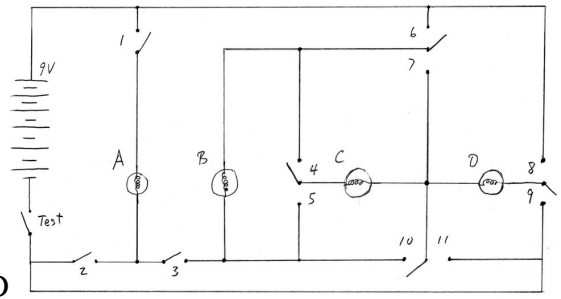
1. Draw a circuit that has a battery, a test switch and a light bulb:

2. On the Foutan schematic, use a colored pencil to show how you would make this circuit using lamp A. Next, using lamp B, then C, then D.

A 

B 

C 

D 

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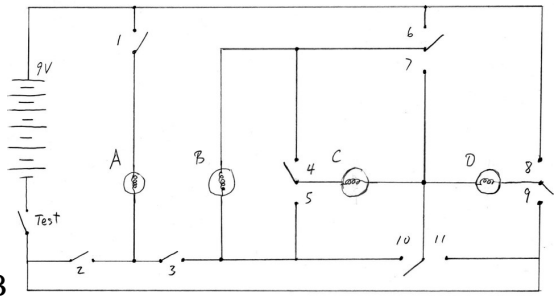
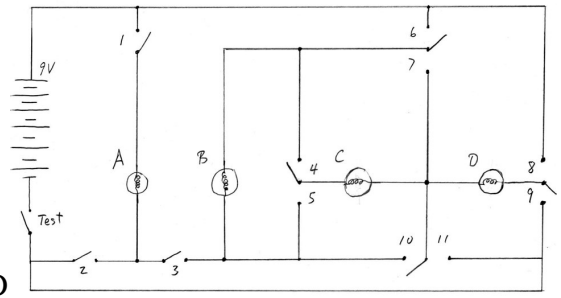
3. Draw a circuit that has a battery, a test switch and two light bulbs in **series**.

4. On the Foutan schematic, use a colored pencil to show how you would make this circuit using lamp A and B. Next, with C and D.

A&B 

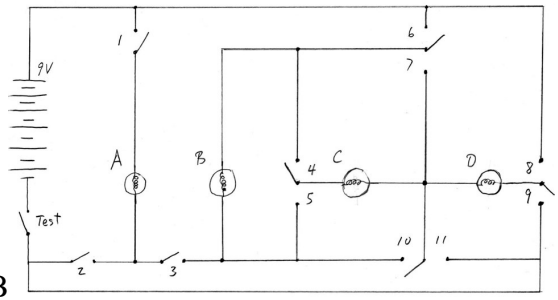
C&D 

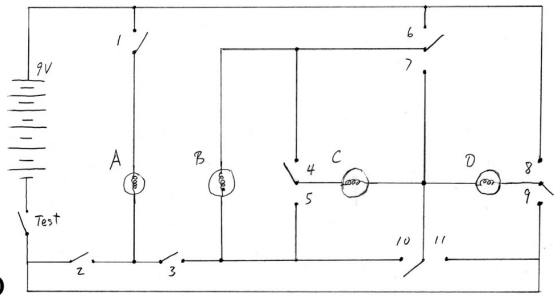
5. How can you test whether two lamps are in series? _____

6. What do you notice about the brightness of the bulbs?

7. Draw a circuit that has a battery, a test switch and two light bulbs in **parallel**.

8. On the Foutan schematic, use a colored pencil to show how you would make this circuit using lamp A and B. Next, with C and D.

A&B 

C&D 

9. How can you test whether two lamps are in parallel ? _____

10. In parallel, the bulbs should have <u>full brightness</u>, however the power supplies can't supply enough current (they have a high internal resistance). If Dr. H hooks up a stronger power supply, do they achieve full brightness?

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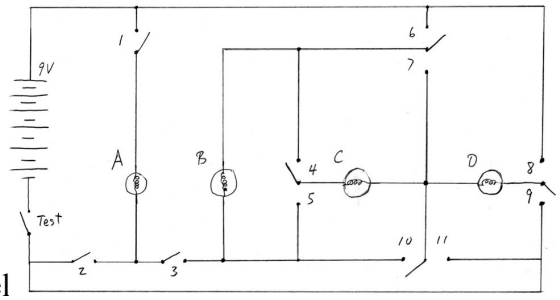
11. Draw a circuit that has a battery, a test switch and **two** light bulbs in **series** and **one** bulb in **parallel with both of them**.

12. On the Foutan schematic, use a colored pencil to show how you would make this circuit.

B&C in series, A in parallel 

13. What happens when you remove lamp A? _____

14. What happens when you remove lamp B? _____

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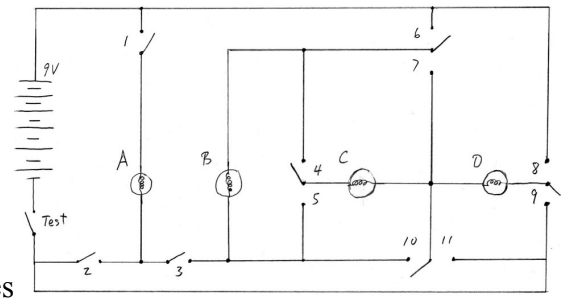
15. Draw a circuit that has a battery, a test switch and **two** light bulbs in **parallel** and **one** bulb in **series with both of them**.

16. On the Foutan schematic, use a colored pencil to show how you would make this circuit.



A&B in parallel, C in series

17. What happens when you remove lamp A? _____

18. What happens when you remove lamp C? _____

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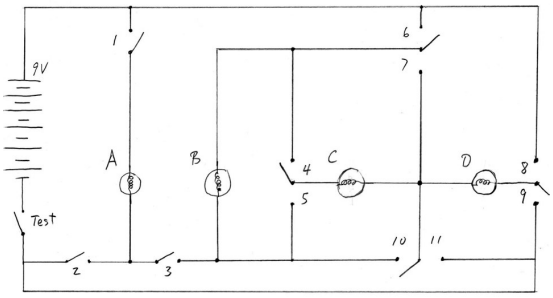
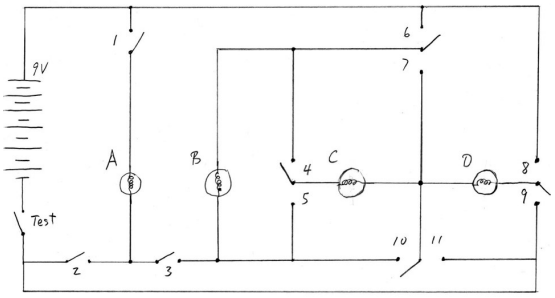
19. Extra task. Draw circuit diagram and Foutan setup.





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20. Extra task. Draw circuit diagrams and Foutan setup.