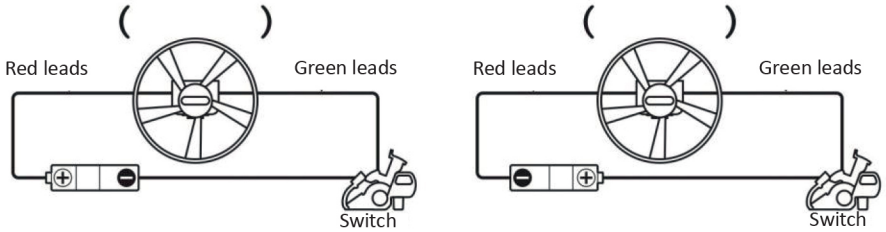
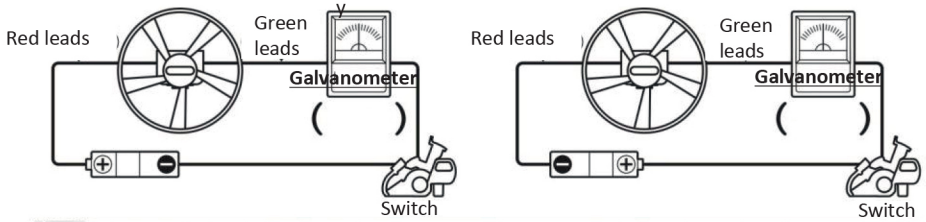
Multi-Functional Electric Car - Model NR Worksheet

Experiment 1: Let's find out which way the batteries are connected and how the current flows!

☆ For each battery orientation, write the direction in which the motor is rotating with an arrow in ( ).

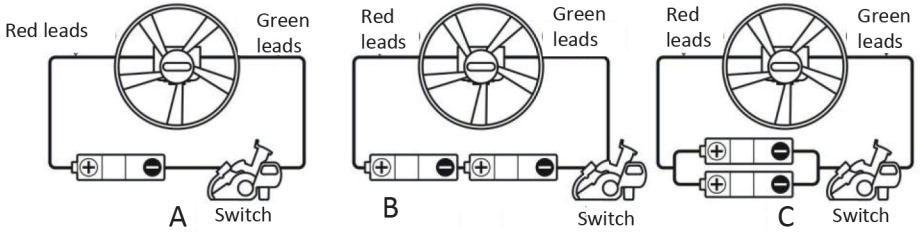


☆ For each battery orientation, write the galvanometer needle's direction with an arrow in ( ).



Experiment 2: Let's find out how strong the current is by changing how the batteries are connected!

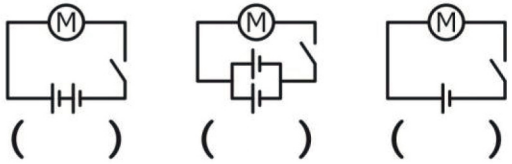
☆ Which connection of A, B, and C turns the fastest? ( )

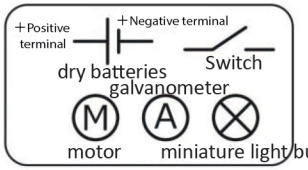


☆ What is the name of the method used to connect the batteries in B and C? Let's write in the brackets ( ) below.

B ( ) connection C ( ) connection

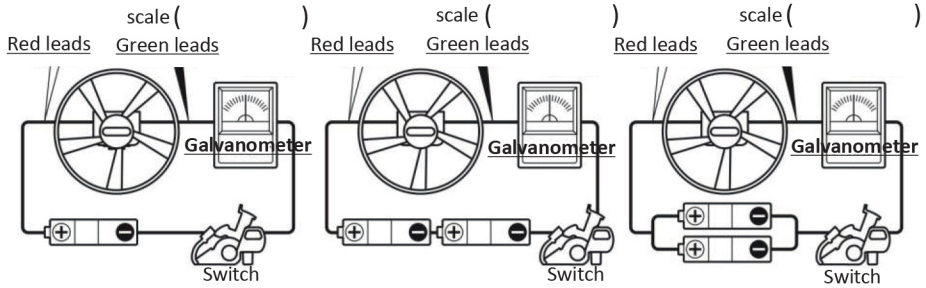
☆ Choose the same connection method from A, B, and C as in the three schematics below, and write your answer in the blankets.





Circuit Symbols

☆ Measure the current strength in each battery connection and write the number on the scale in the brackets. Draw a circuit diagram for each below.



circuit diagram	circuit diagram	circuit diagram

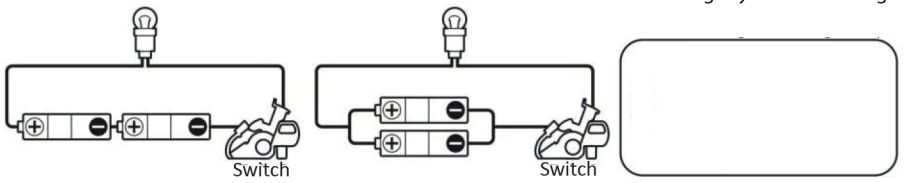
☆ Write on the right the speed at which the motor turns when connected to two batteries compared to when connected to one battery.

speed at which motor turns	speed at which motor turns

☆ Summarize the relationship between how to connect dry batteries and the strength of the current

Let's try! Let's find out how to connect a battery and the brightness of a miniature light bulb!

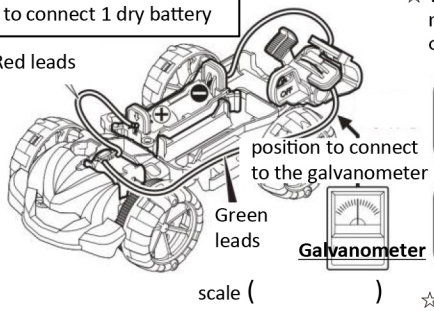
☆ Draw a schematic below showing how to connect a brightly lit miniature light bulb.



☆ What is the light bulb's brightness when connected to two batteries compared to one battery?

Experiment 3: Let's check the strength of the current using motor car

How to connect 1 dry battery



scale ( )

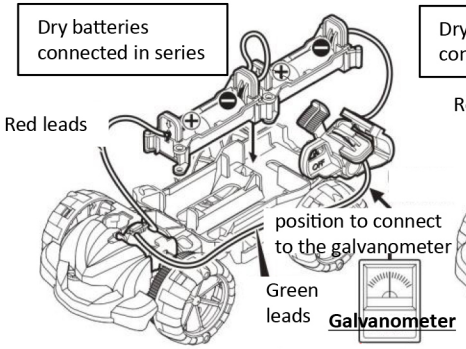
☆ Write down the speed at which the motor car moves when connected in series and parallel, compared to when connected to a single battery.

Running speed of the series connection

Running speed of the parallel connection

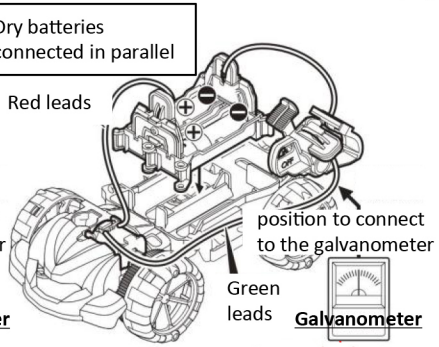
☆ Measure the current of each motor cars and write down the measurement in the bracket ( )

Dry batteries connected in series



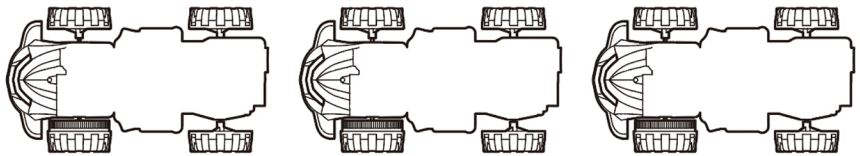
scale ( )

Dry batteries connected in parallel



scale ( )

☆ Let's look at each motor car from above and add a circuit diagram to the diagram below.

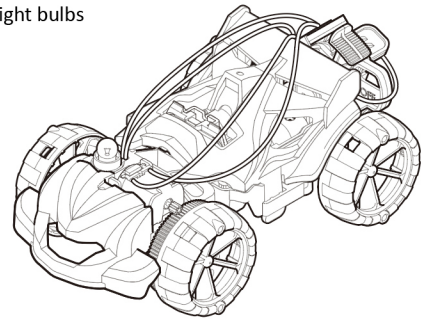


Parallel connection of batteries | Series connection of batteries | Position to connect the galvanometer

☆ Summarize the relationship between the speed at which a motor car runs and the strength of the electric current.

Let's try! Let's make a motor car run with miniature light bulbs

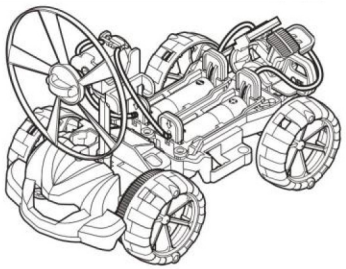
☆Let's write your thoughts after running motor car with miniature light bulb



Let's try! Let's run a propeller car

How was the propeller car able to run?

Let's write your thoughts after making the propeller car run



Let's try! Fly the propeller

☆ The propeller spins when I switch it on, but it doesn't fly up. What should I do?

☆ How does the propeller fly when connected to two batteries compared to one battery?