

Lesson 7 - Series Electric Car

Course Objectives	<ul style="list-style-type: none">■ Understand the characteristics and applications of the series connection.■ Develop the ability to communicate and coordinate with others through group discussion.■ Assemble a series electric vehicle with building blocks and demonstrate the principle of the series connection applied in the model.	Total Time		
		60 mins		
Keywords	Series connection. A series electric vehicle.			
Teaching Guide		Time (mins)	Teaching Resource	Assessment
<p><u>1. Increase Students' Motivation</u></p> <p>(1) A teacher lectures the topic story. Students listen and try to comprehend the lesson.</p> <p>(2) A teacher demonstrates the model of this lesson - Series Electric Car. Please ask students to think about how to make it work.</p> <p>(3) <u>Brainstorming</u> What activities or mechanisms have a similar pattern with the series connection in our life?</p> <p>(A : Several circuit components are connected to each other along a single path, and each connection point connects at most two components. This kind of connection is called series connection. Such as flashlight.)</p>		5	<ul style="list-style-type: none">■ Supplemental slides	Self-awareness

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<p>2. Course Activity Related to the Manual</p> <p>(1) Students get the basic materials of this model.</p> <p>(2) A teacher can guide students to assemble the model with the building blocks according to the teaching slide and the student's book.</p> <p>(3) Encourage students to modify the model. If a student finishes the adjustment, he or she can do the “Hands-on Experiment” first.</p> <p>(4) Hands-on Experiment Design two loops, one links two battery holders and one bulb via series connection and the other links a battery holder and two bulbs; compare the brightness differences of the bulbs in the two loops.</p> <p>(A : In a series circuit, the current through each of the components is the same, and the voltage across the circuit is the sum of the voltages across each component.</p> <p>When the two battery holders are connected in series, twice the total current is obtained, so the bulb is brighter; when the two bulbs are connected in series, the current is evenly divided, so the bulb is darker.) wiki</p> <p>(5) Hold a contest. Students can discuss and practice during the contest.</p> <p>(6) Hands-on Creativity Try using the series method and blocks to design a shining flash light.</p> <p>(A : Connect the battery in series and connect the bulb. Covered the bulb with frames to make a flashlight.)</p>	<p>10 20</p> <p>15</p>	<ul style="list-style-type: none"> ▪ Electronic whiteboard ▪ Projector & Screen ▪ Tablet or computer ▪ Building blocks 	<p>Participation</p>
<p>3. Integrated Learning</p> <p>(1) Display all the models of each group. Give the winner group a big hand.</p> <p>(2) A teacher can make a review of the concepts of “Series connection. A series electric vehicle.” Or this teacher can encourage students to share the experience about either the assembly of the model or the reflection of a game.</p> <p>(3) Students’ works can be displayed in the classroom.</p> <p>(4) Remind students to clean up the desk, disassemble the model and put the building blocks back to the boxes.</p>	<p>10</p>	<ul style="list-style-type: none"> ▪ Model ▪ Boxes 	<p>Oral Presentation</p>

4. Extension Task

- (1) Ask students to look for items that use multiple batteries in daily life, and ask students to check which items use the series connection.

(A: A teacher can give some examples, such as flashlights, remote controllers, etc.)

Record & Feedback



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