Erasmus+
Project No.: 2021-1-EL01-KA220-SCH-000023967
KA220-SCH - Cooperation partnerships in school education





Simple & Powered Machines

Freewheeling



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Such a good idea! Do you know that in Formula 1 engineers always make efforts to make the vehicles run as fast as possible?





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Discuss with your students if they have experience on car races.

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In general, in motor sports they pay too much attention on the safety issues as well. Road races are very dangerous.

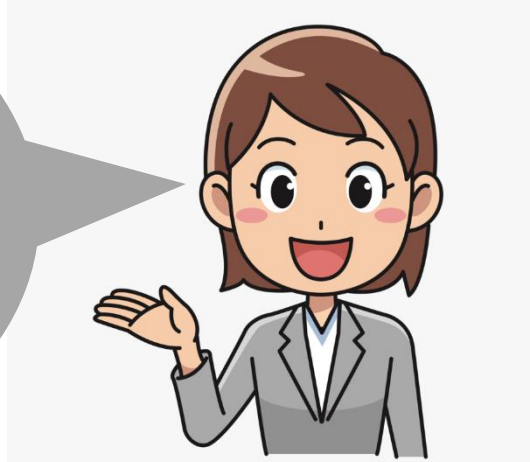


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Highlight the safety issues when we are in the car (e.g., safety belts, speed limit).

Freewheeling

Now let's think of another kind of races: what should we do to make a car move further with the same initial push, and not faster?



Correct! Can you think of an example?



Let's design an experiment! In this experiment we will only change one thing each time and we will make comparisons!

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Before you turn on the next slide, ask your students what they understand by this suggestion.

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We will work like scientists do! For example, we can assume that light cars move further than the heavy ones.



Exactly! We will build a light car and measure how far it moves. Then we will build a heavy car and repeat our measurements.



And how will we know that we push them with the same force?

A what?



Great question! We can let them fall from an inclined plane!

Ask your students if they know what an inclined plane is.

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An inclined plane is also a simple machine, that has many applications. Today we will only use it to let our vehicles move from its top downwards.



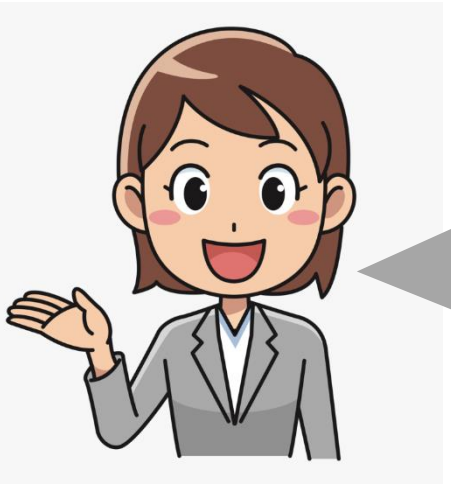


And then we will measure with a meter how far each vehicle moved!



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For your lesson you need to have prepared an inclined plane. Use a plank for the plane and 3-4 books to support.



Exactly! The correct measurement is very important!
Thus, we will do more than one measurement, to be sure for our results! Do you have any other suggestions?

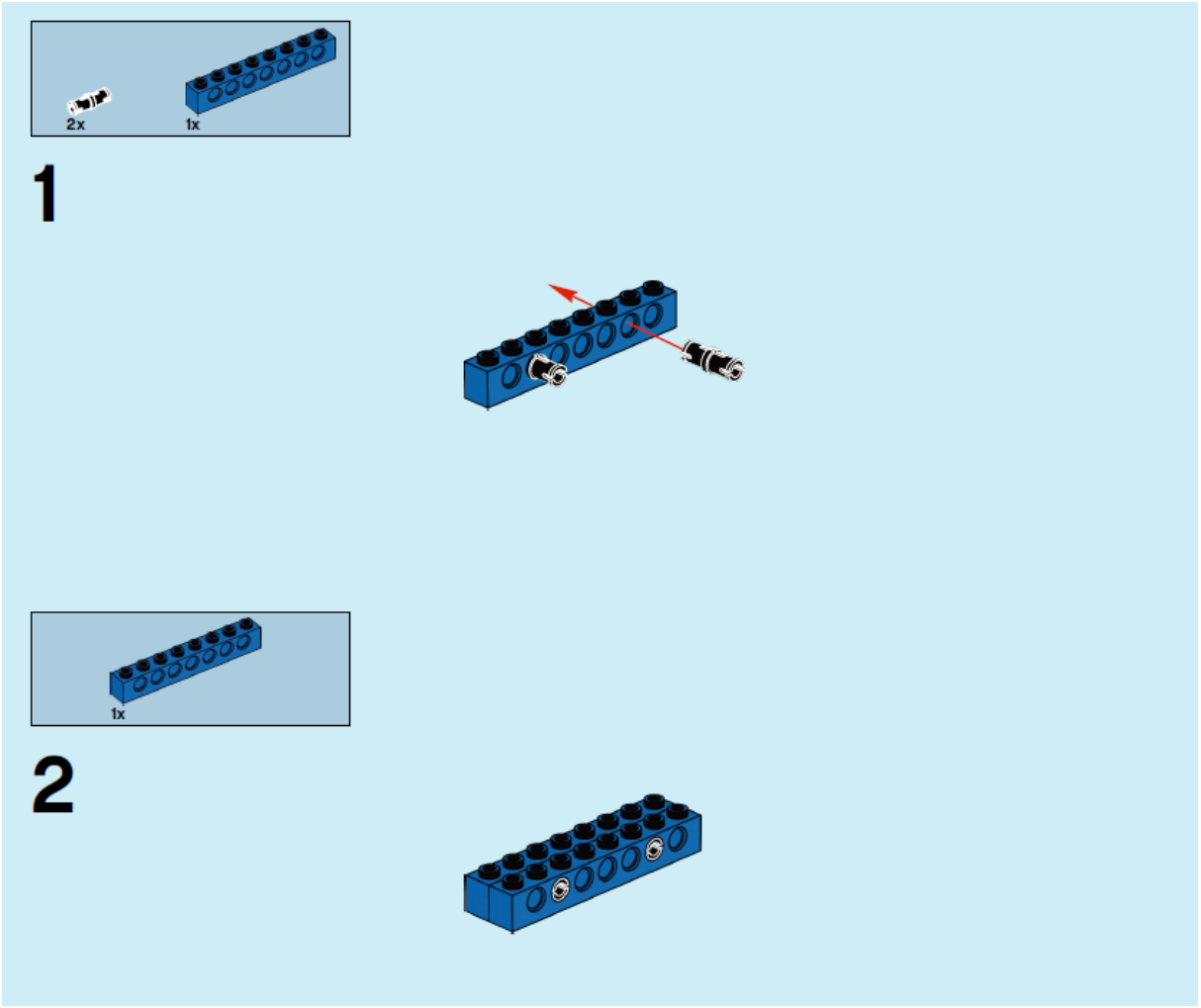


Yes, we can study if a car moves further with small or big wheels!

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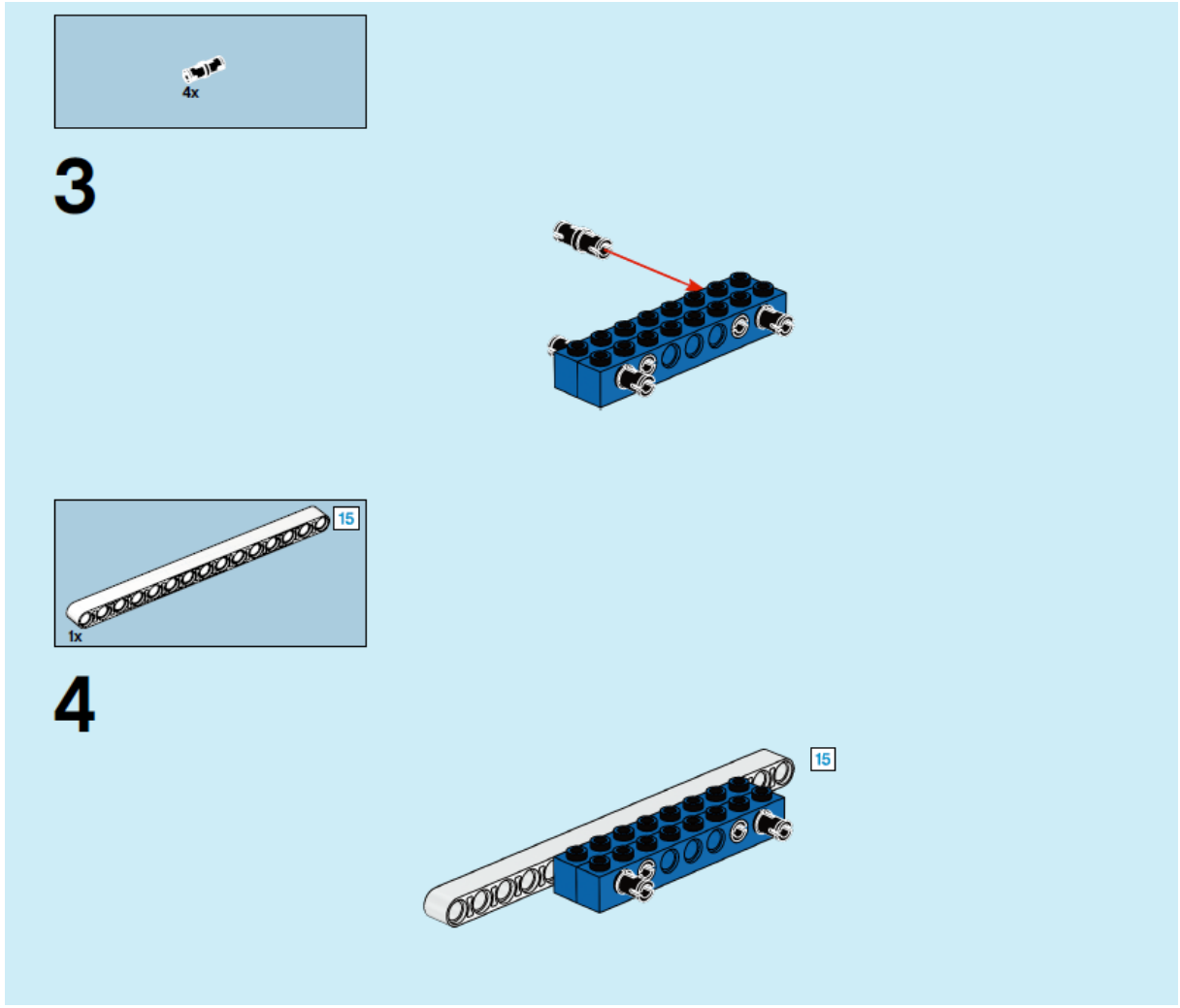
Ask your students if they have any ideas for experimentation. Note them down and try them later.



Start with the skeleton of the vehicle

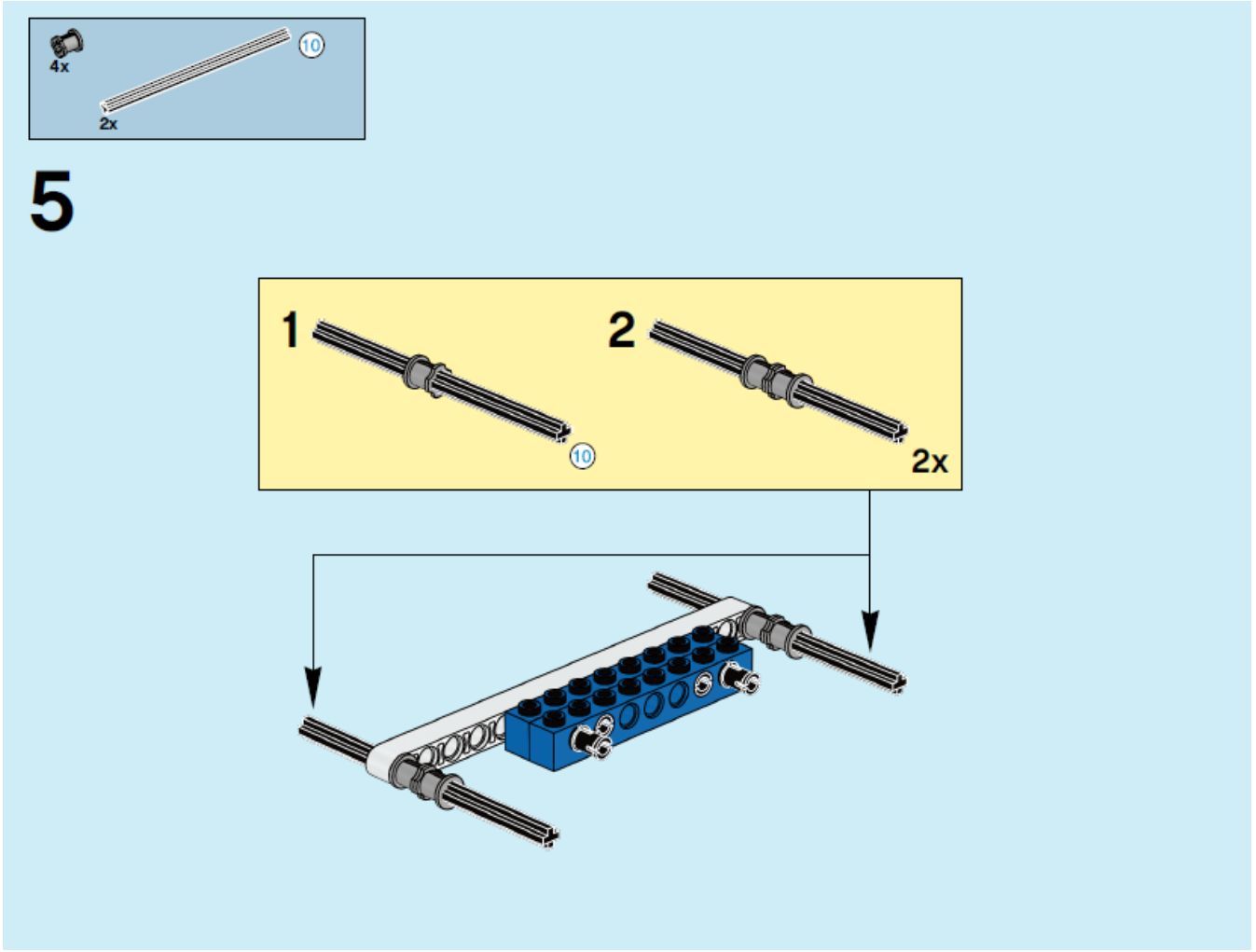
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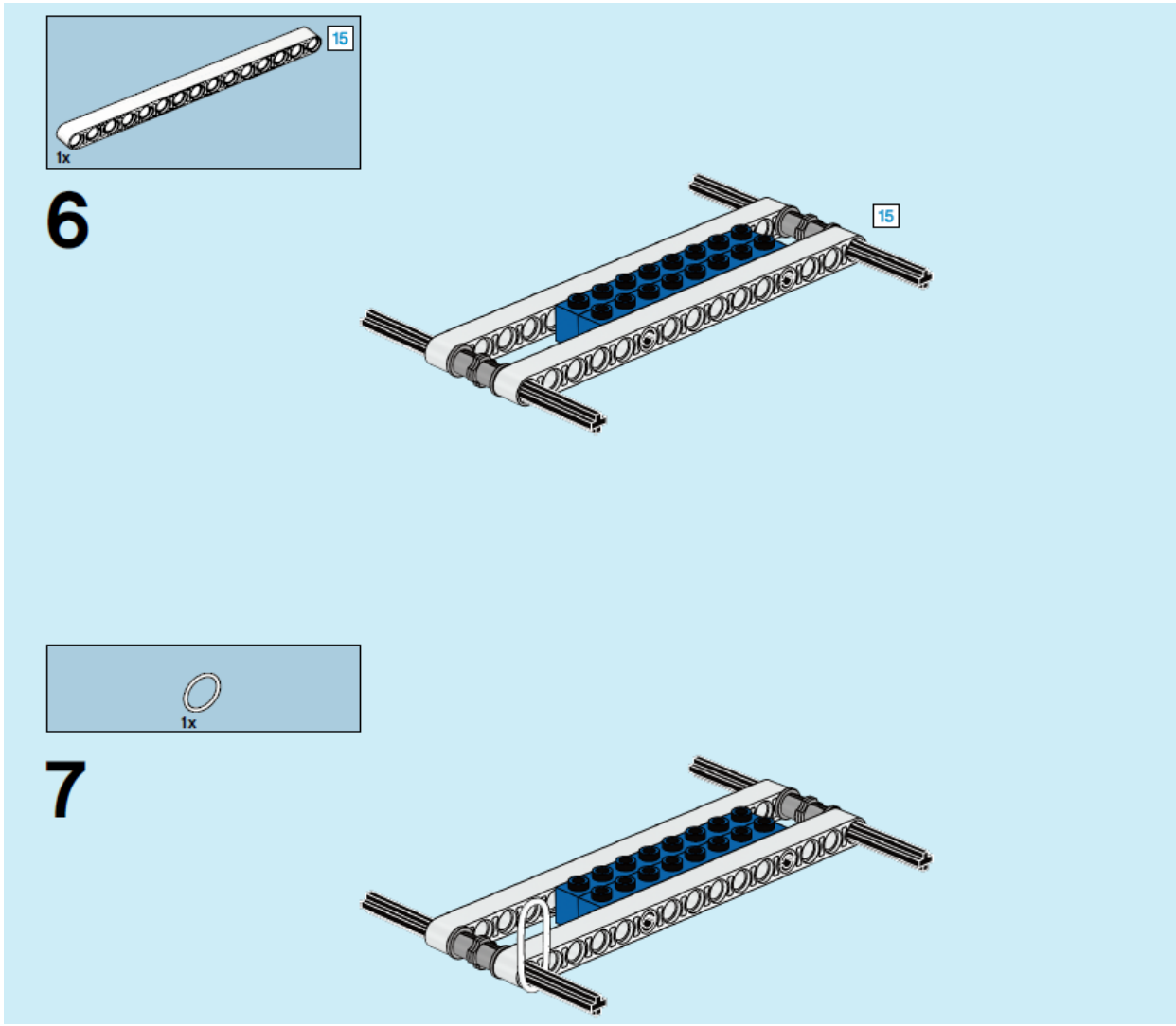
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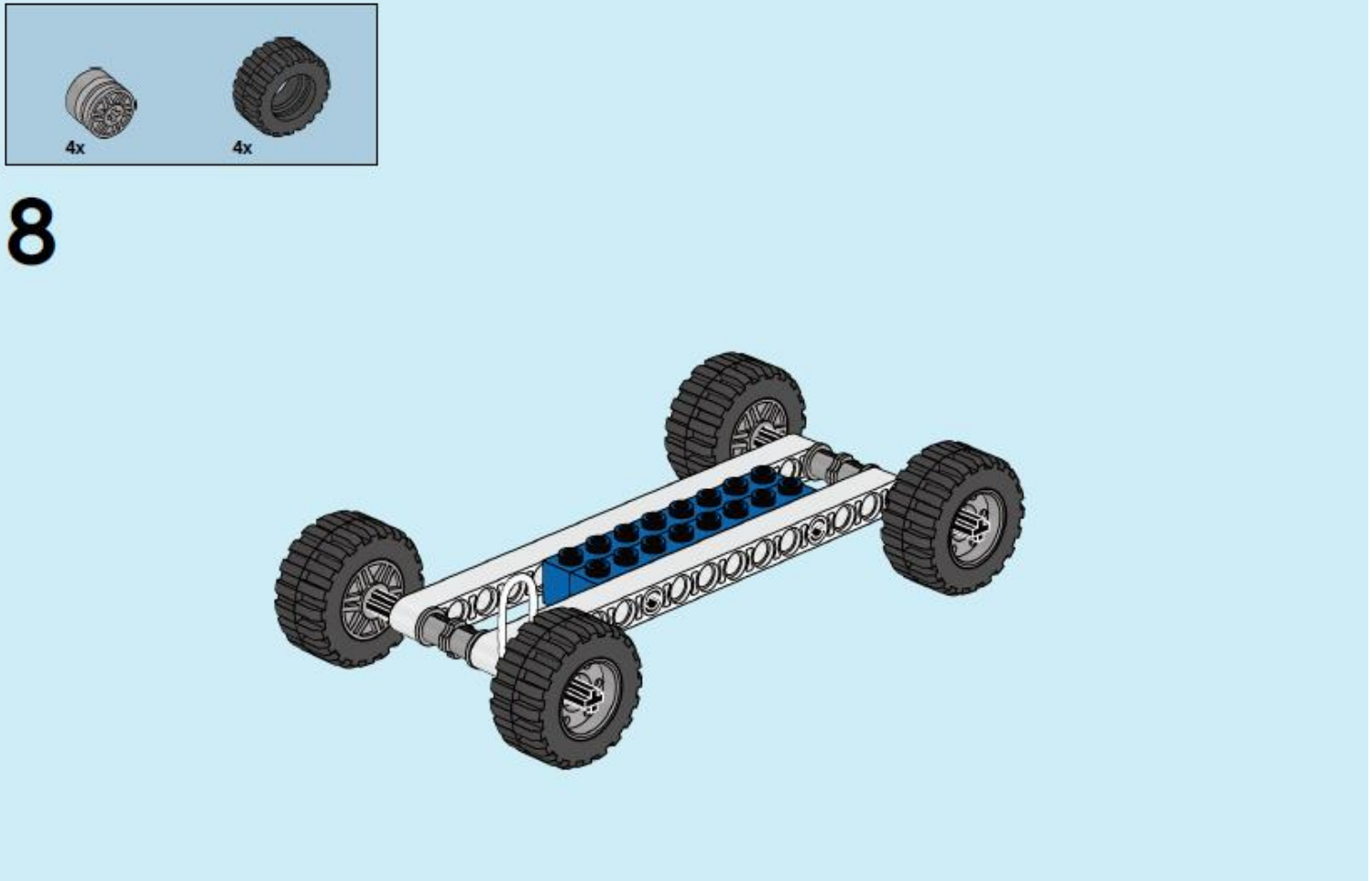
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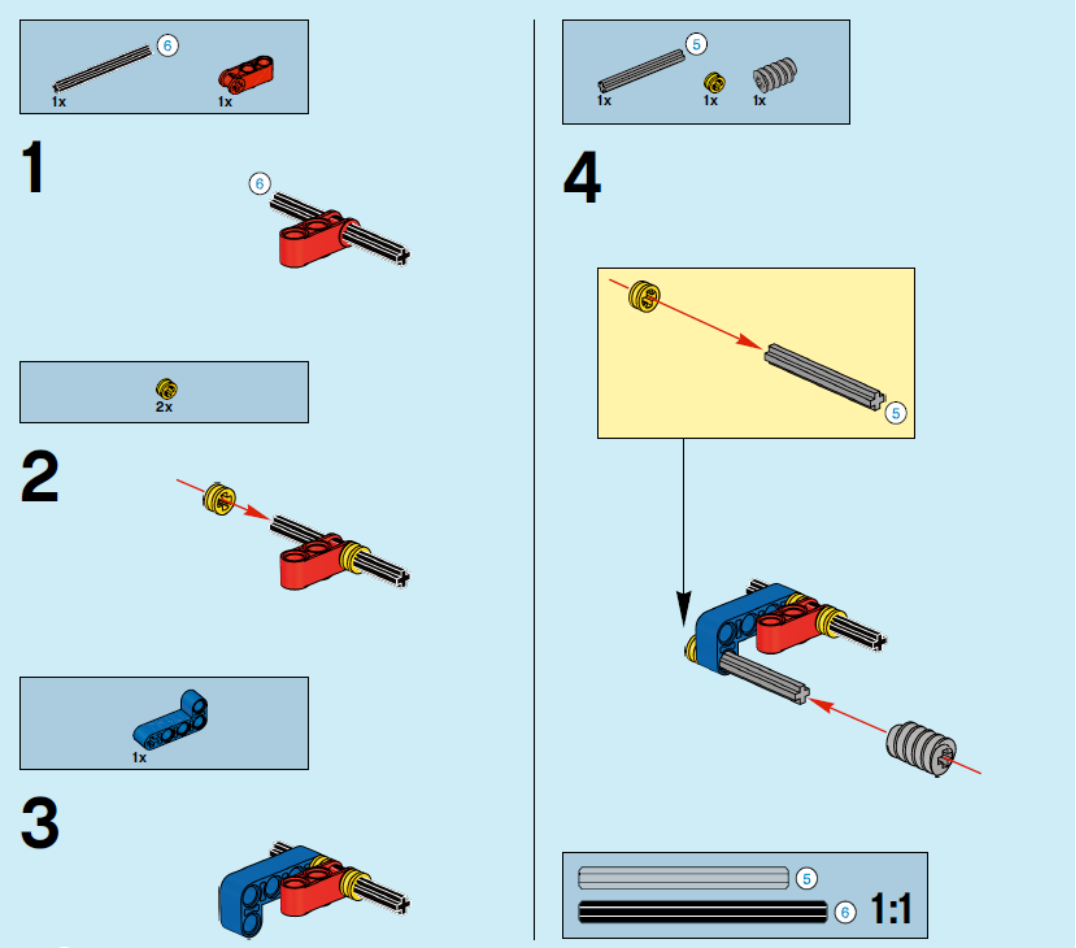
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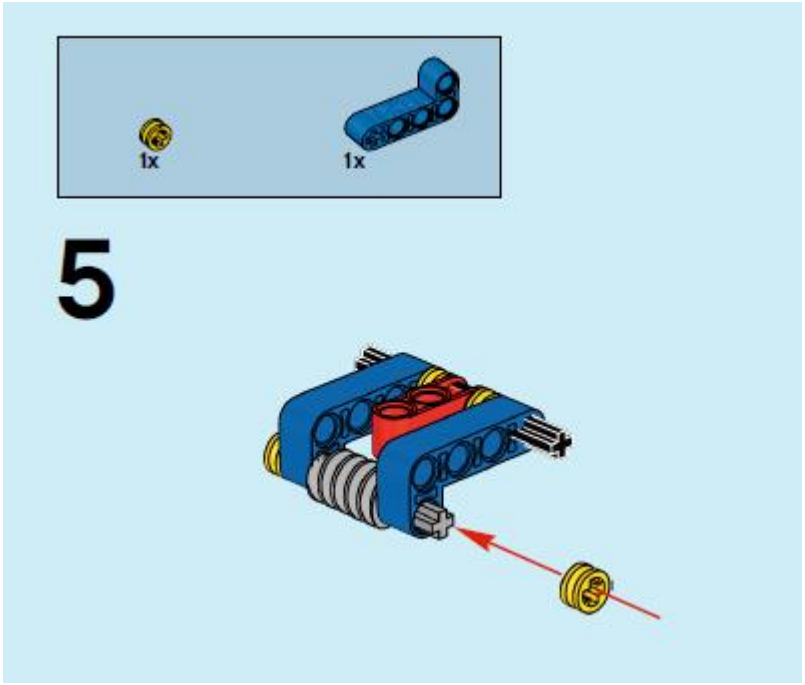


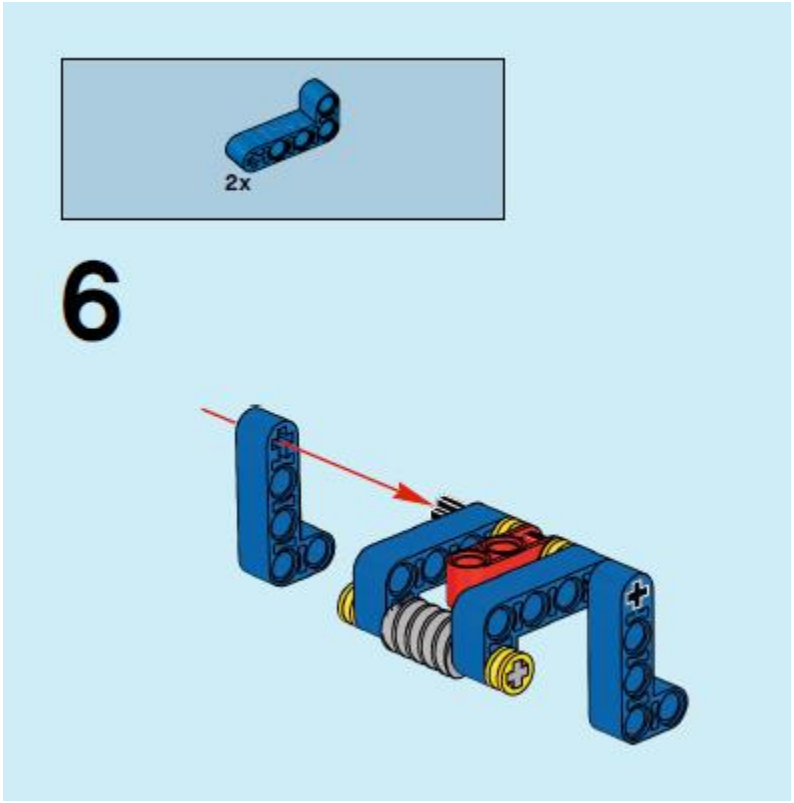
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Move on with the upper part of the vehicle



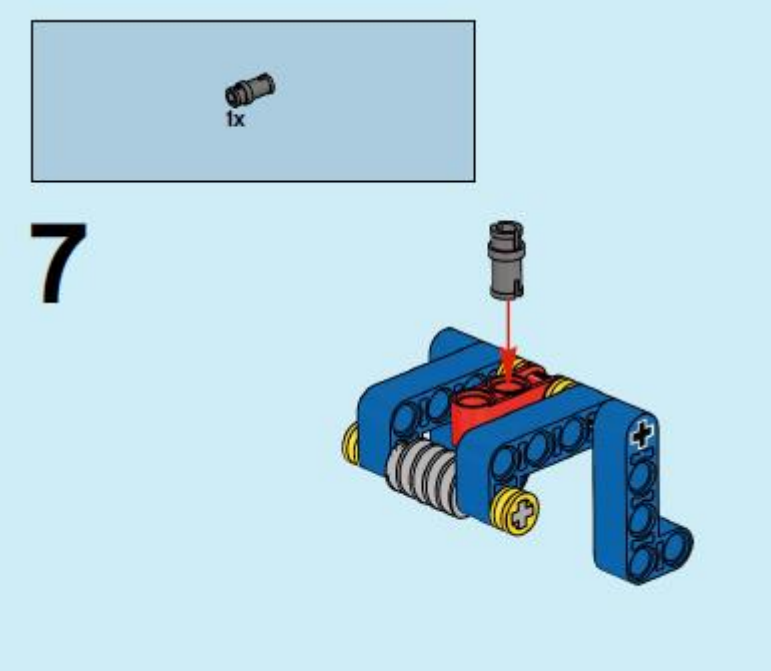
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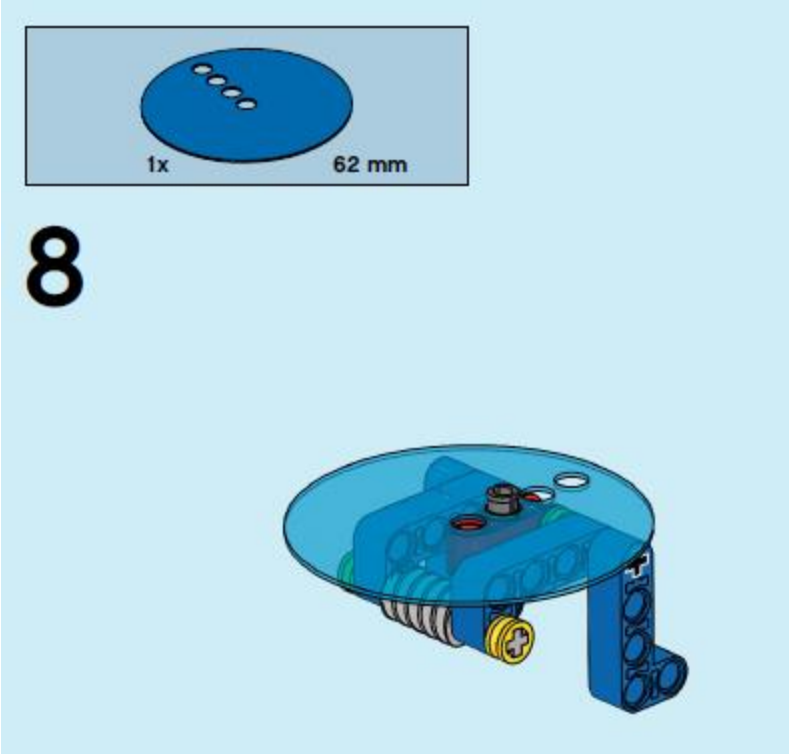




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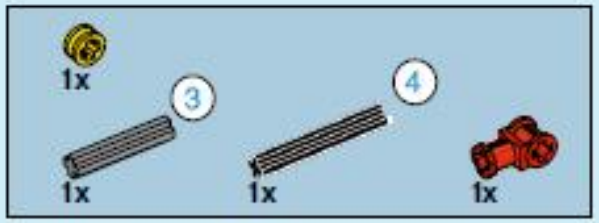




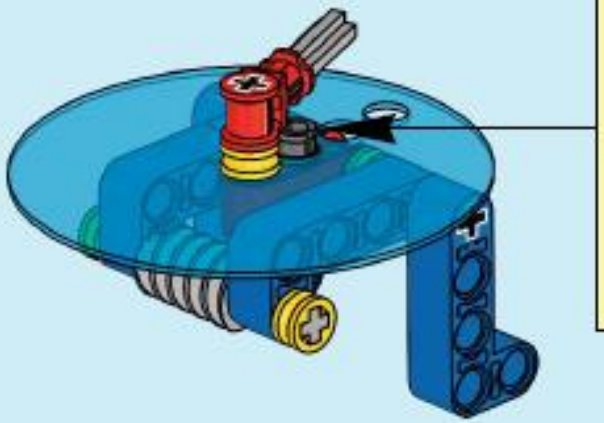
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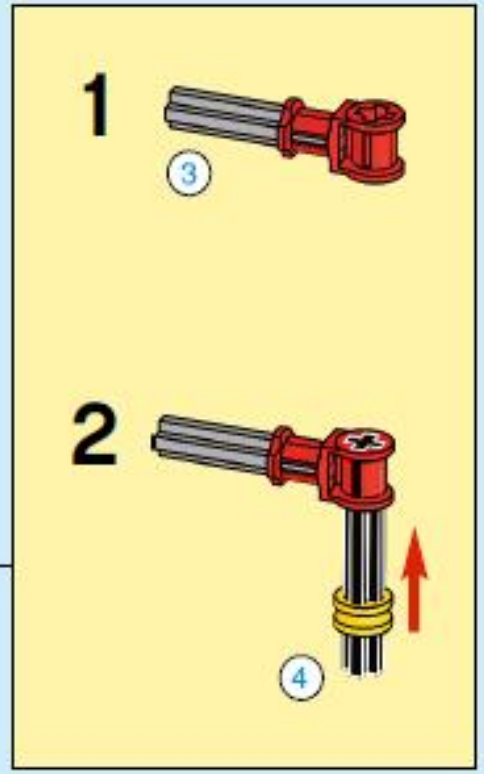
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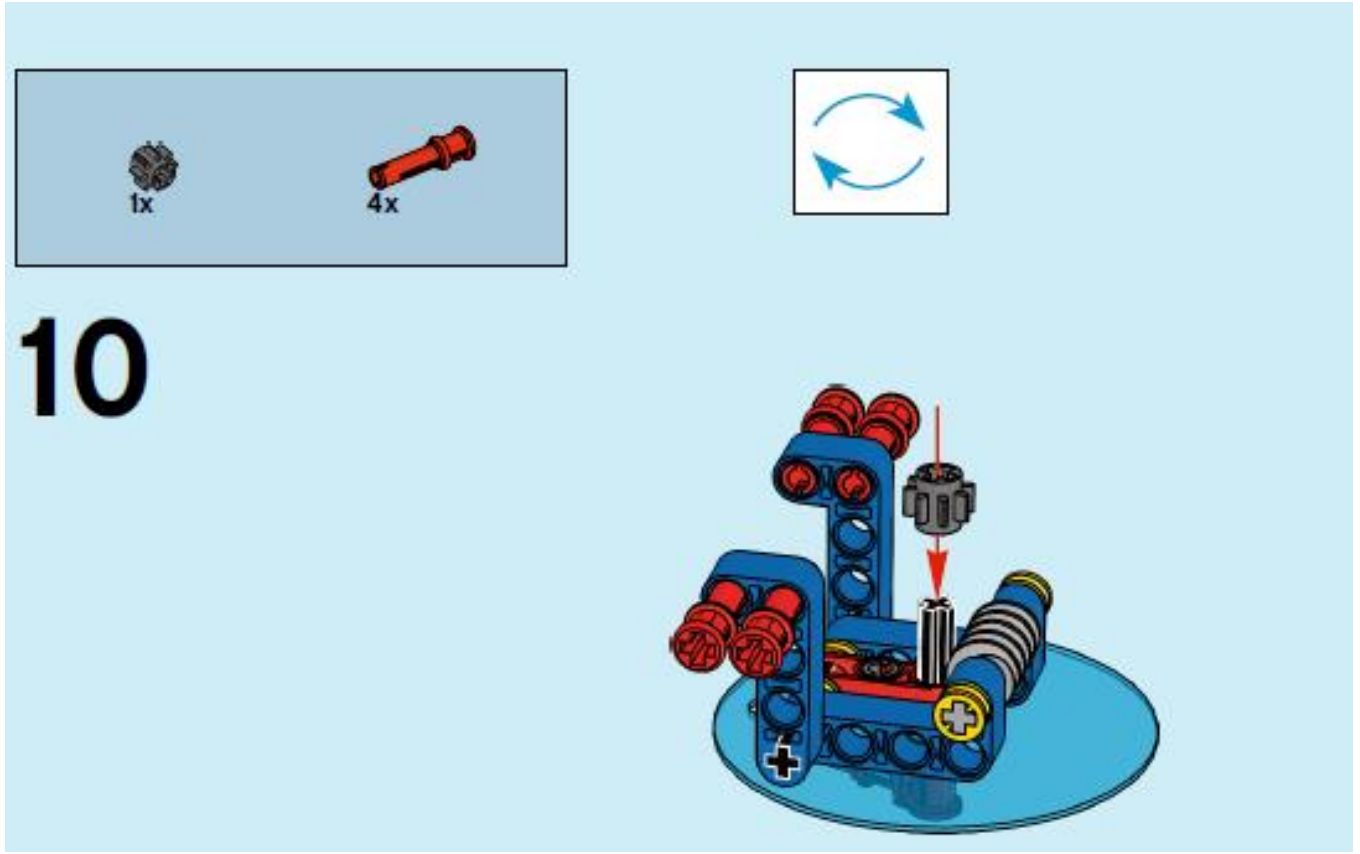
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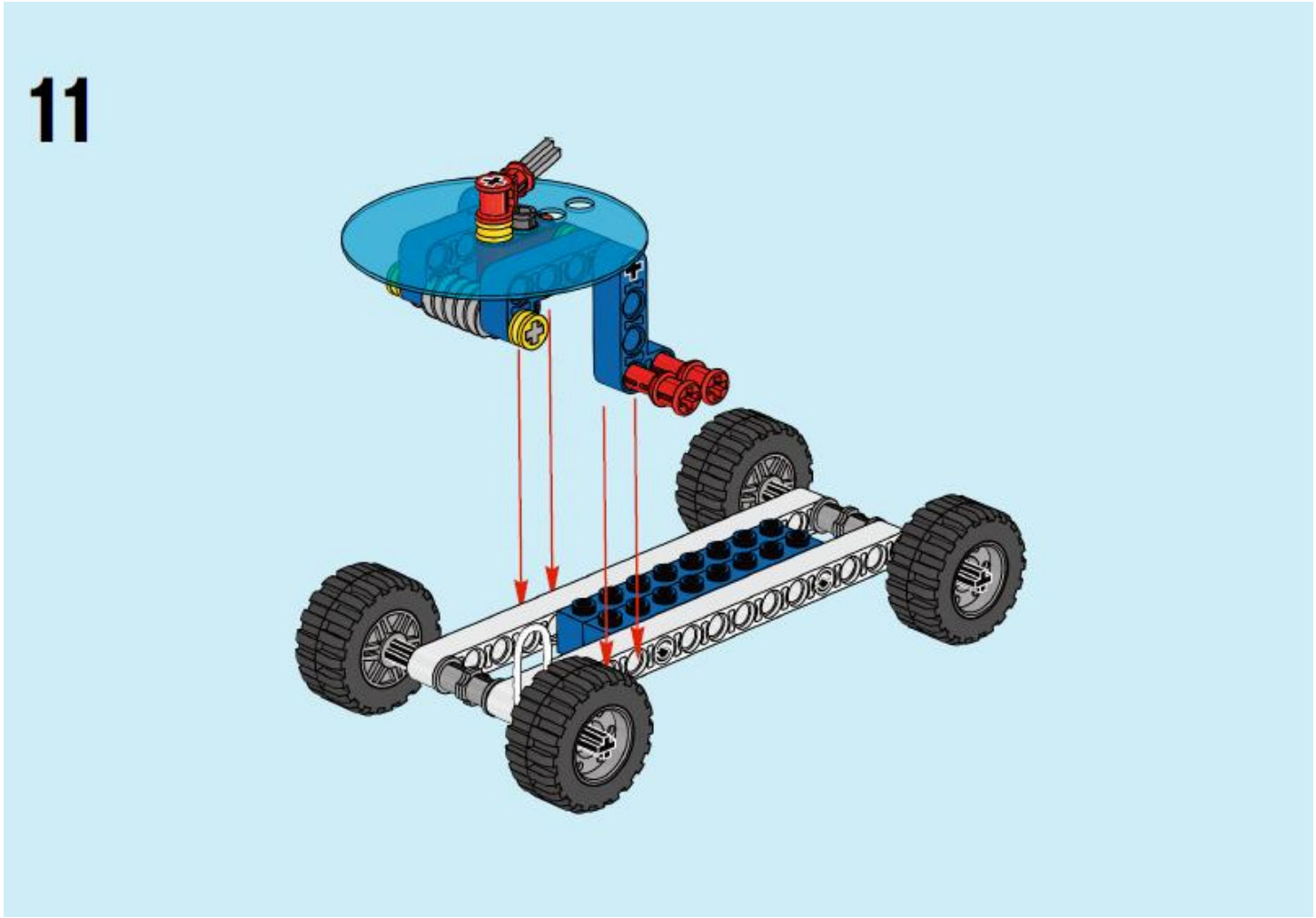
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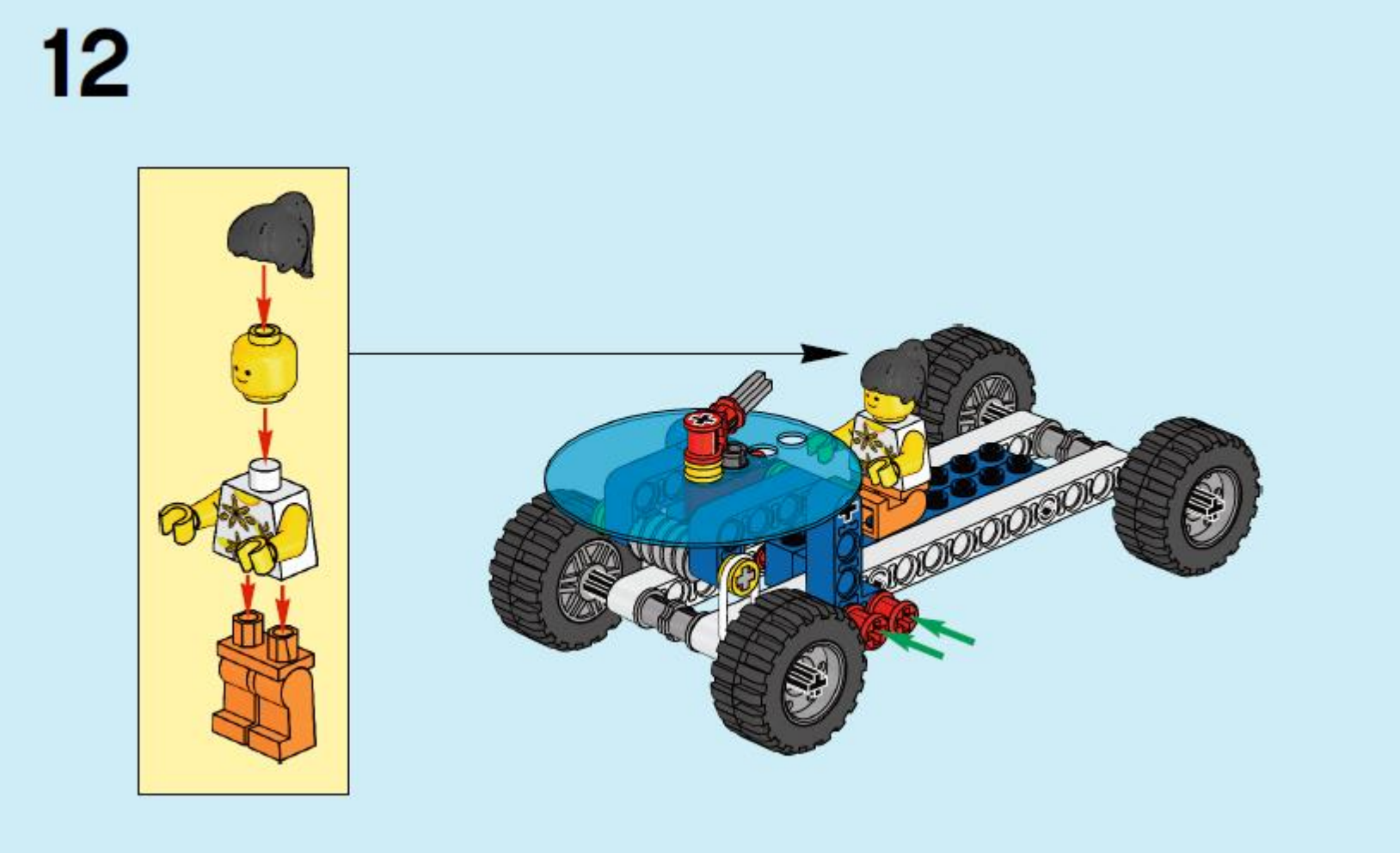
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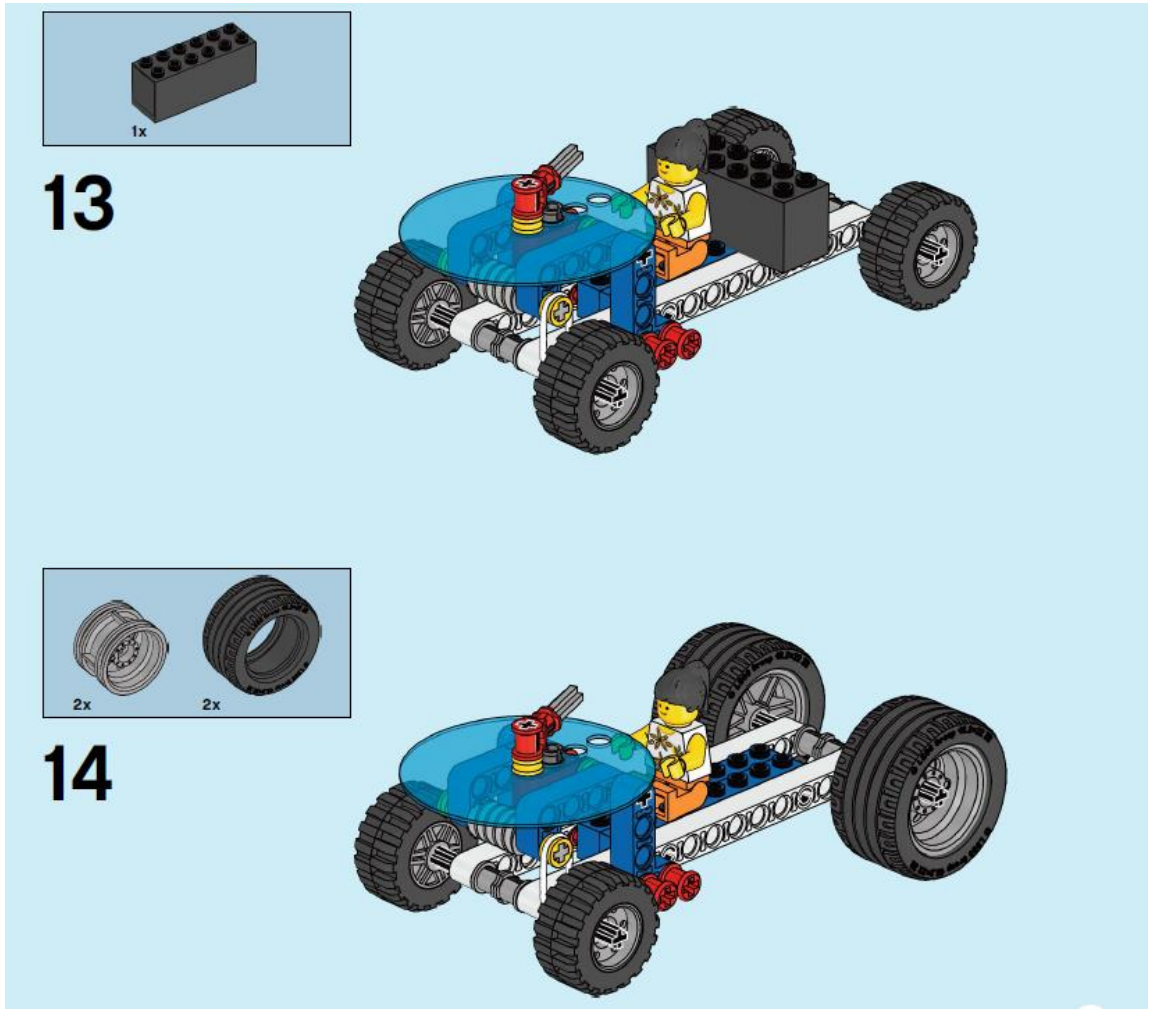
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When you finish your worksheet, disassemble your built and put all parts in their own place



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