

# Dog Sled Team

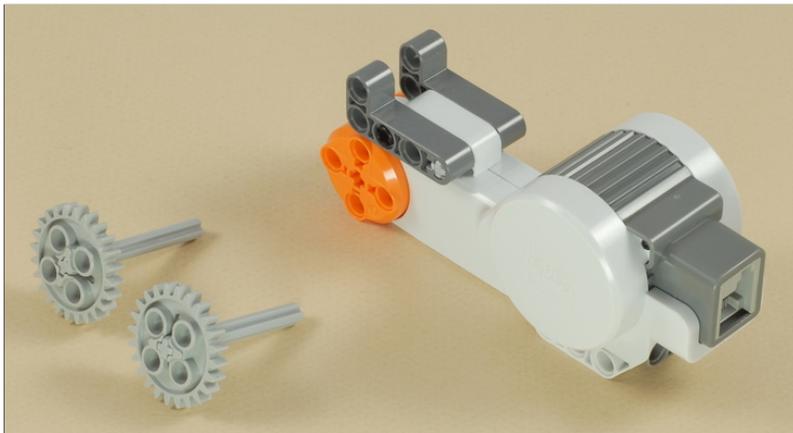
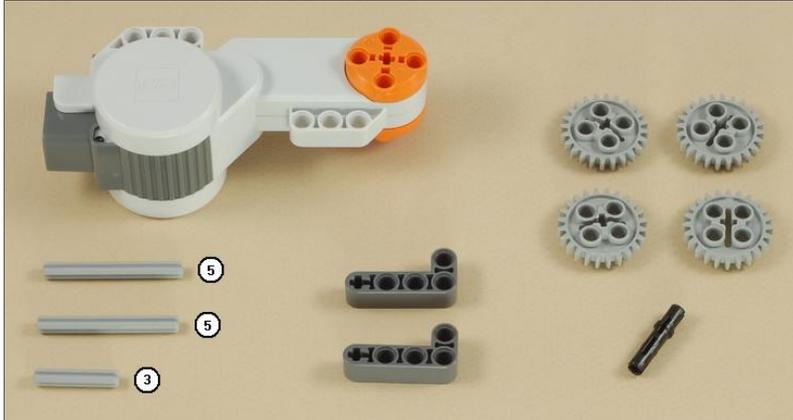
Building: 

Program: 

Designed for **NXT 1.0** (8527, or 9797 + 9695/9648)

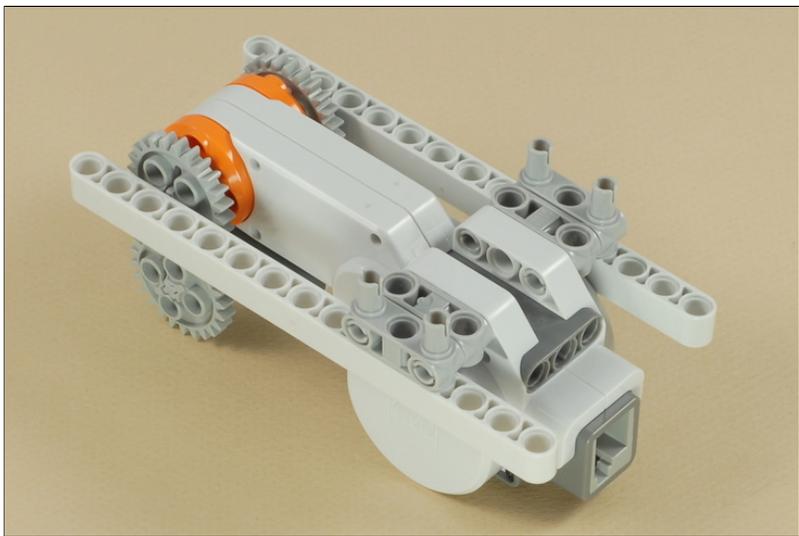
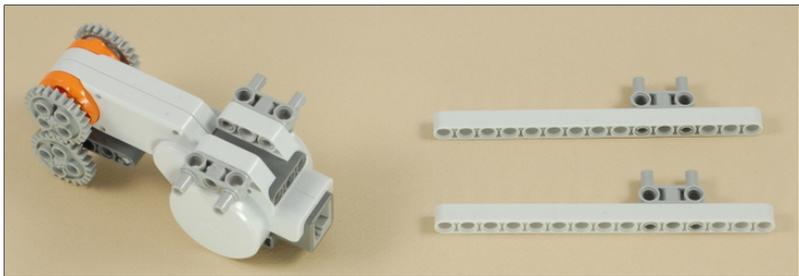
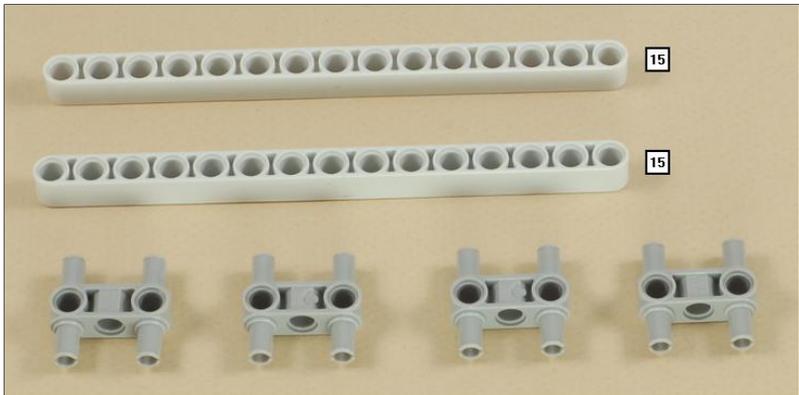
## Building Instructions

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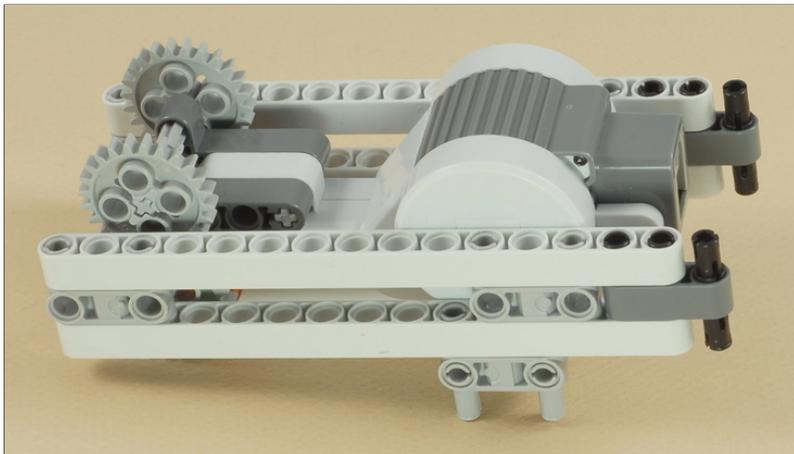
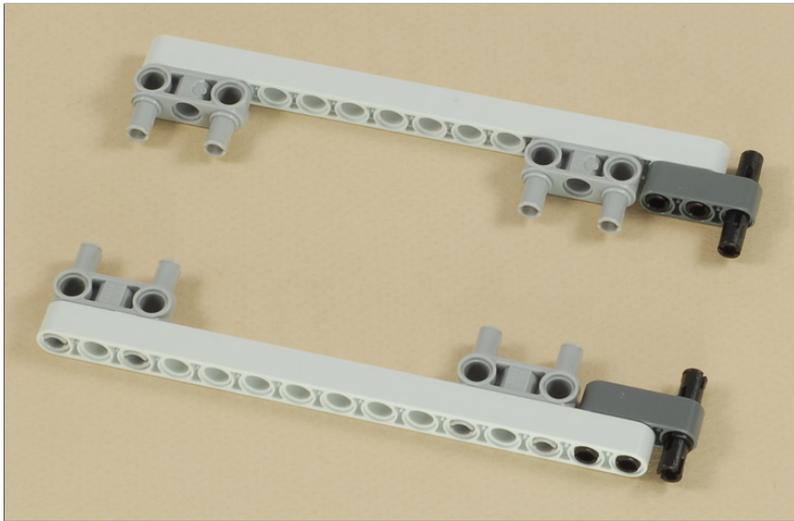
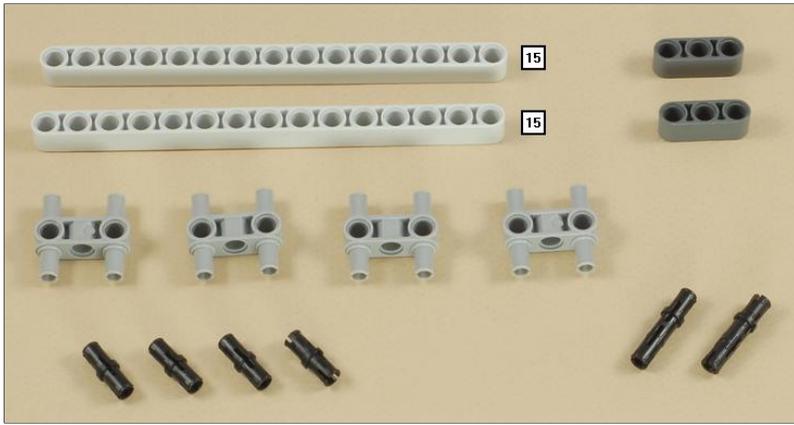




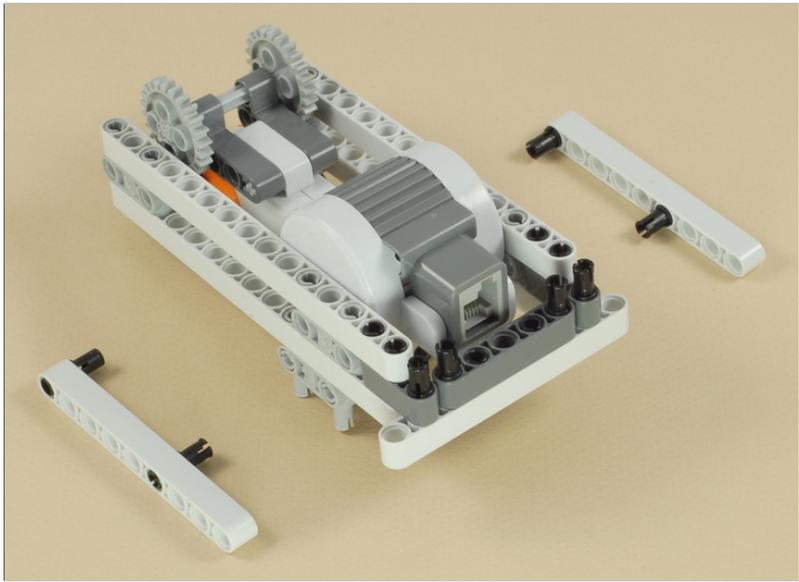
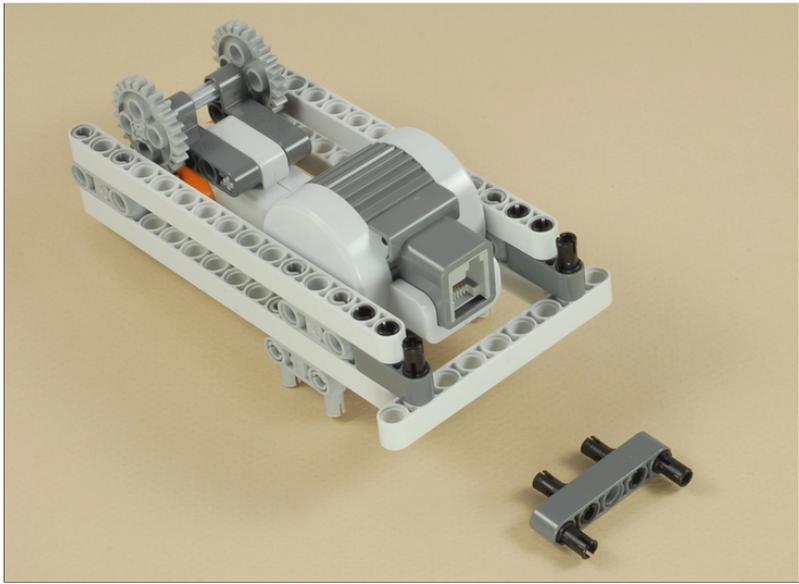
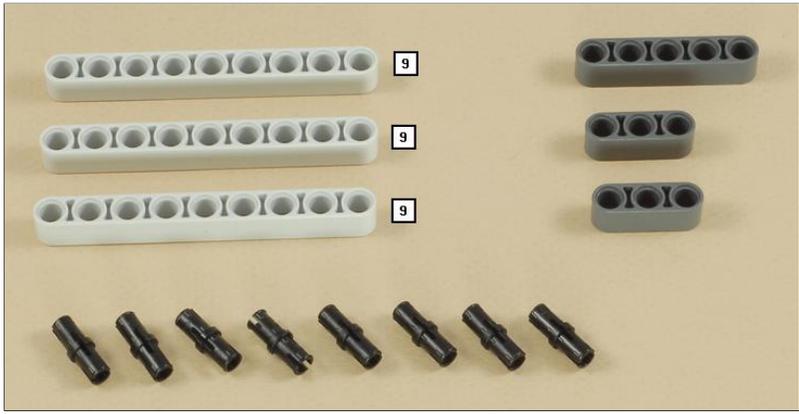
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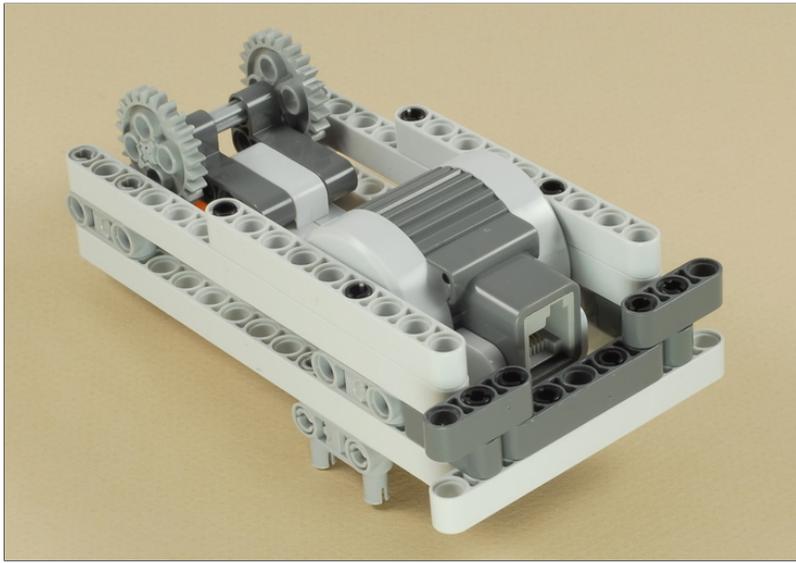


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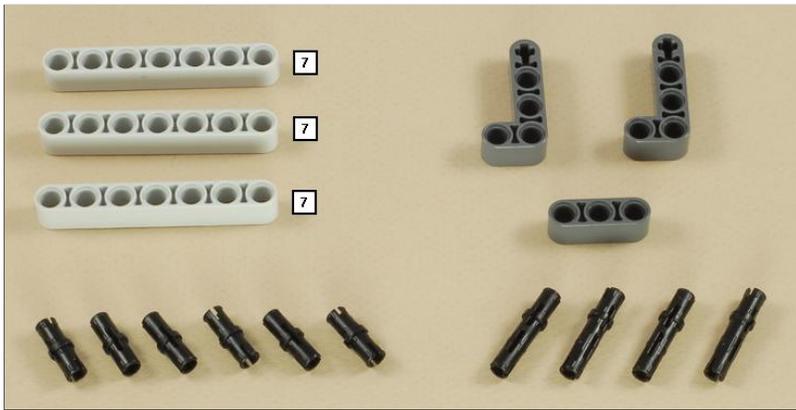


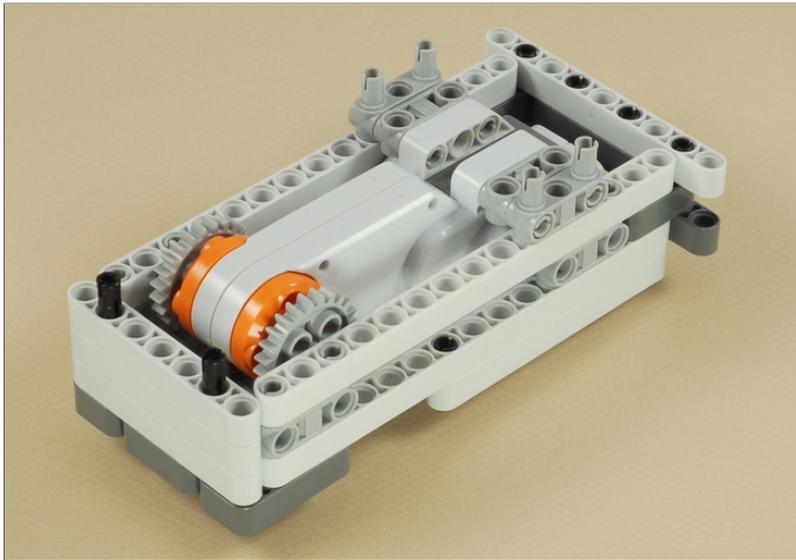
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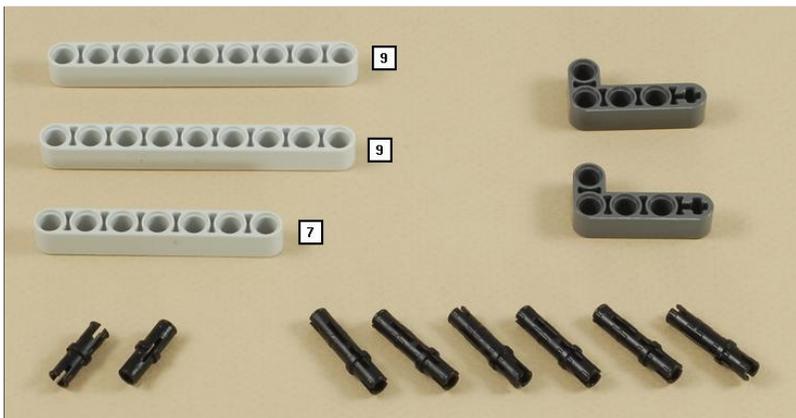


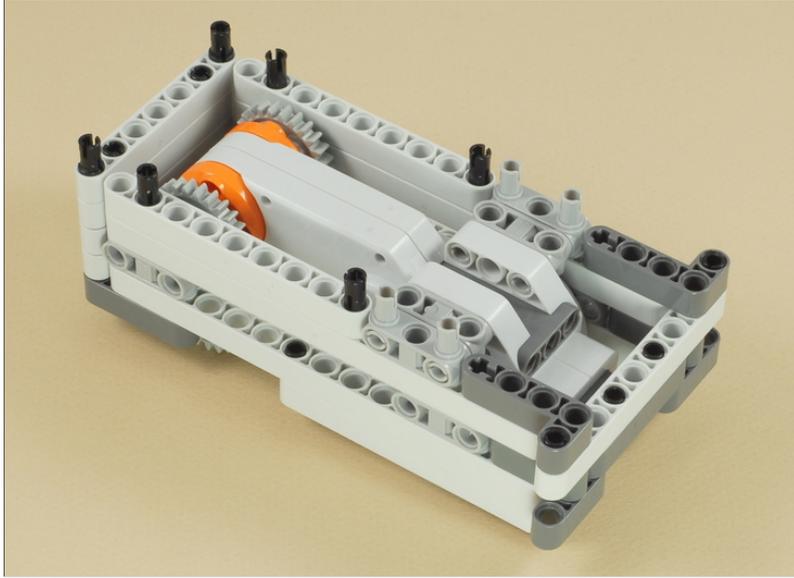
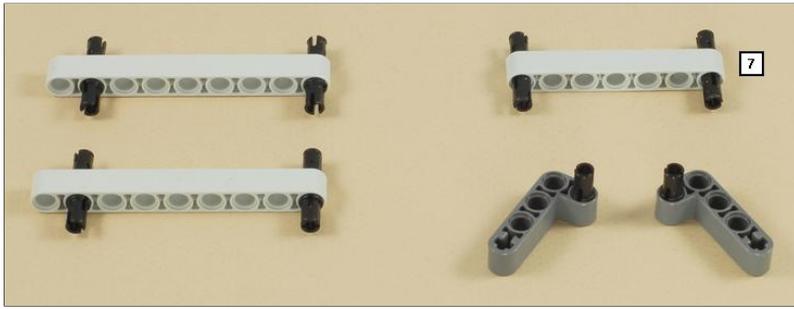
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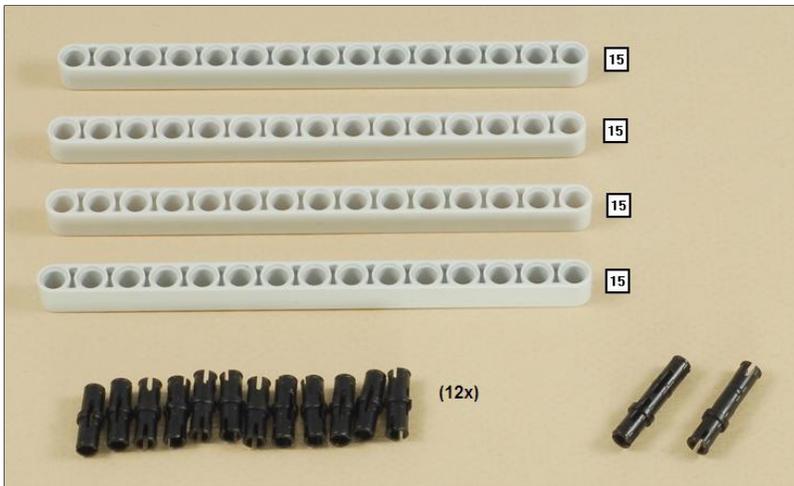


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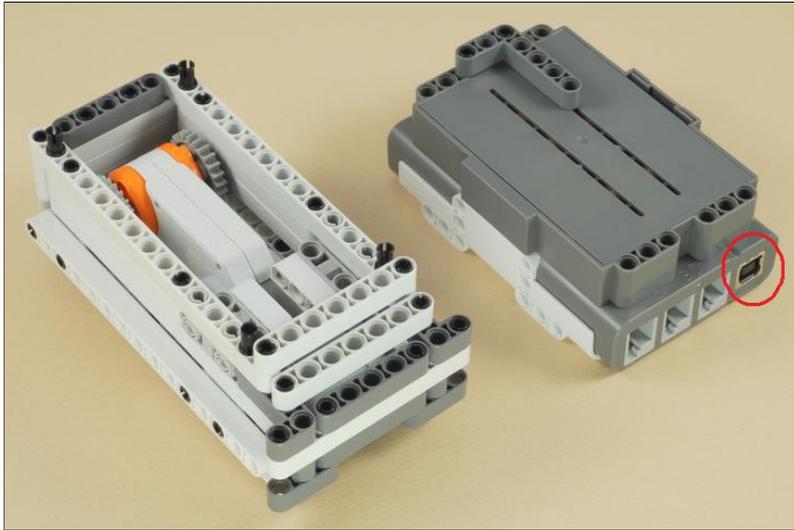
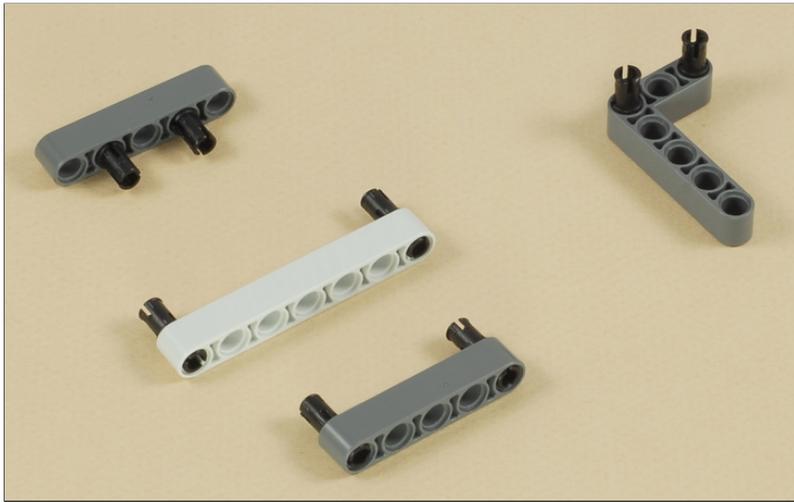




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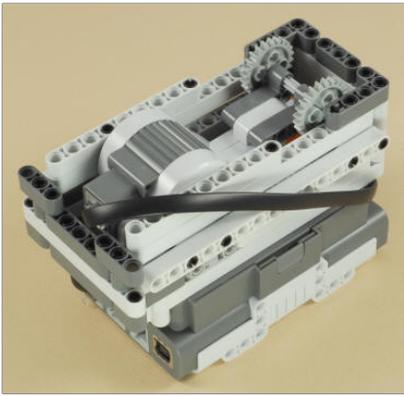




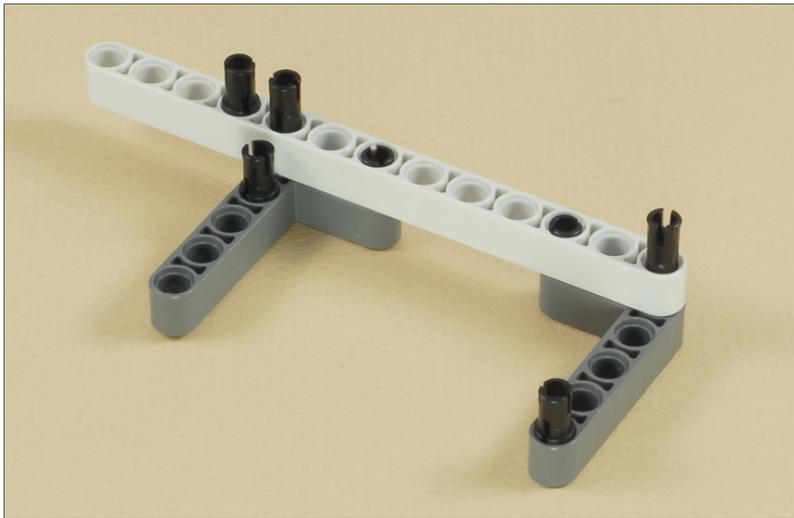
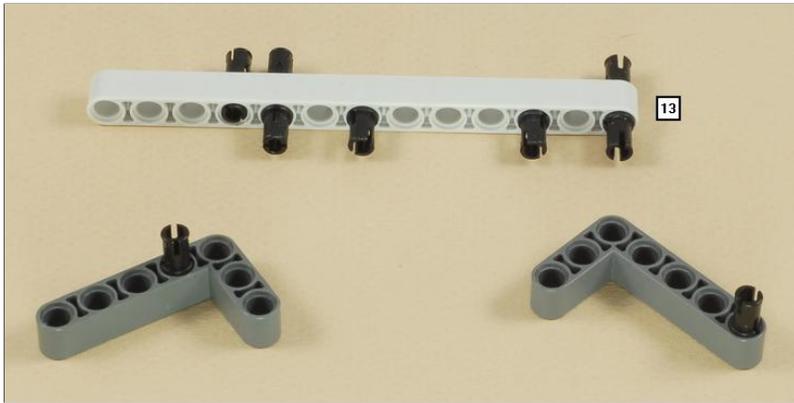
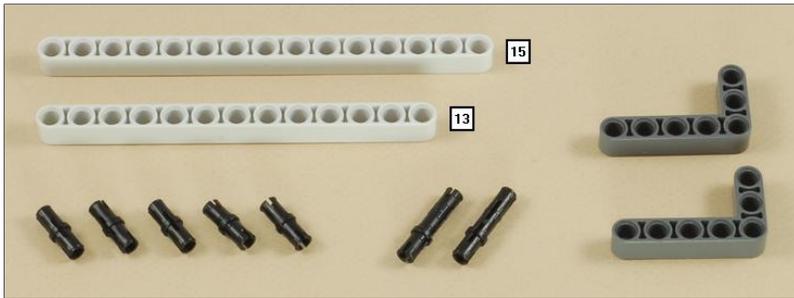


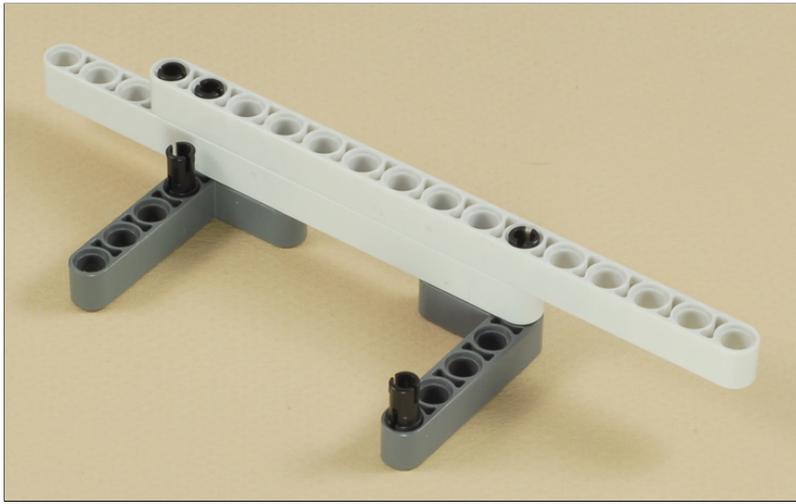
# 9

Use a medium length (35 cm) wire to connect the hidden motor to port **A** on the NXT. This is a tight fit, but it will make it. Attach the wire to motor first, wrap it around the NXT as shown, then plug it into the NXT.

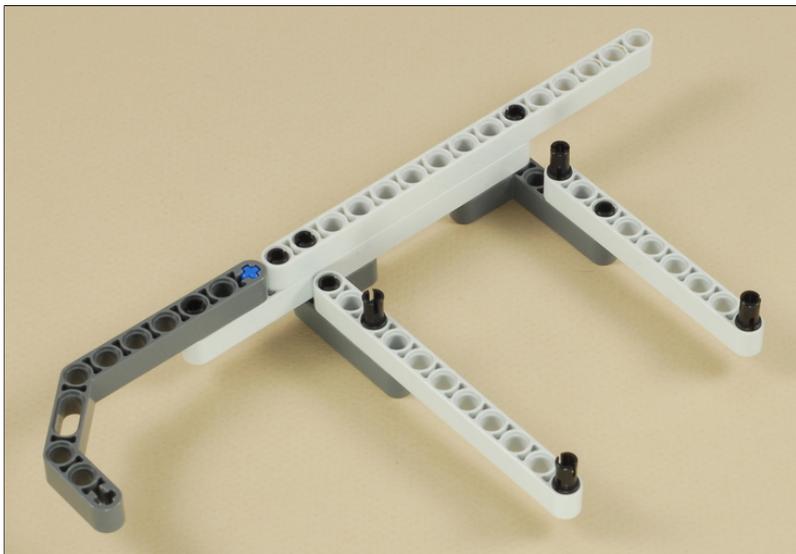
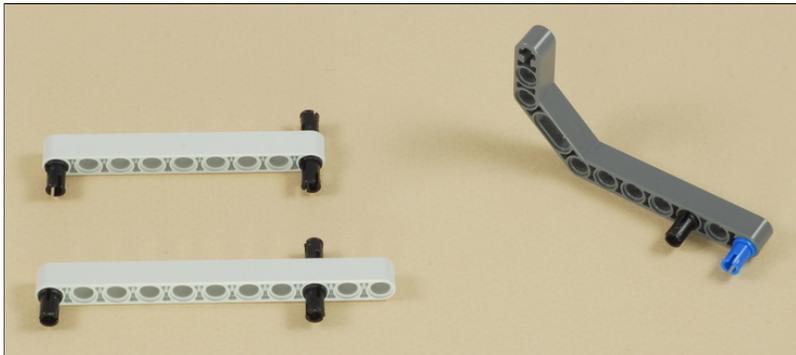
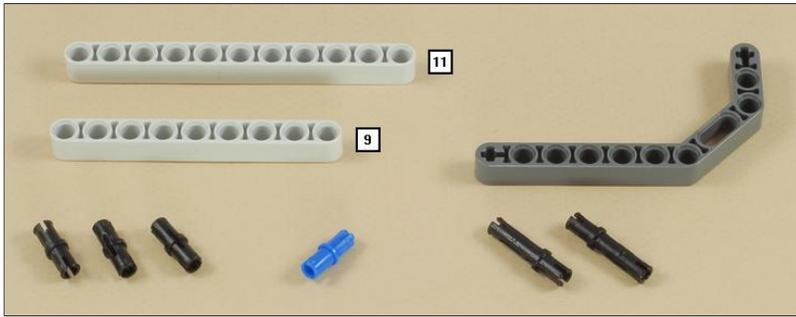


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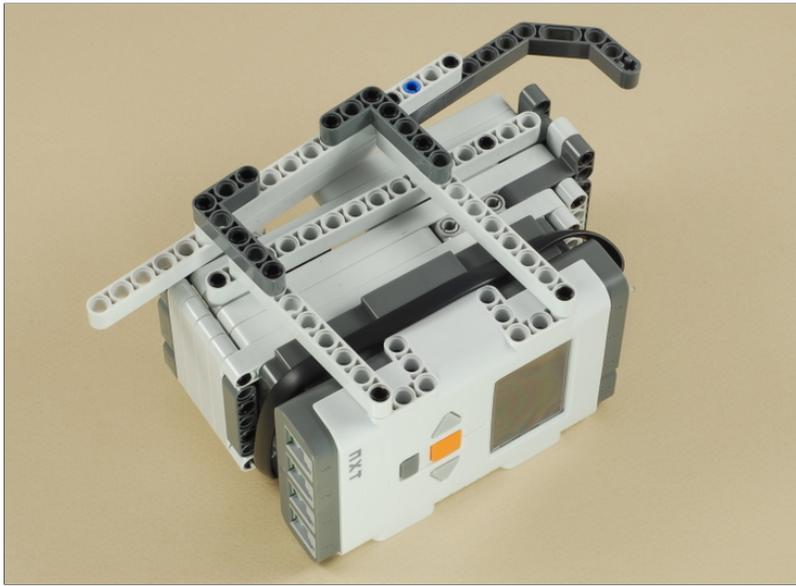




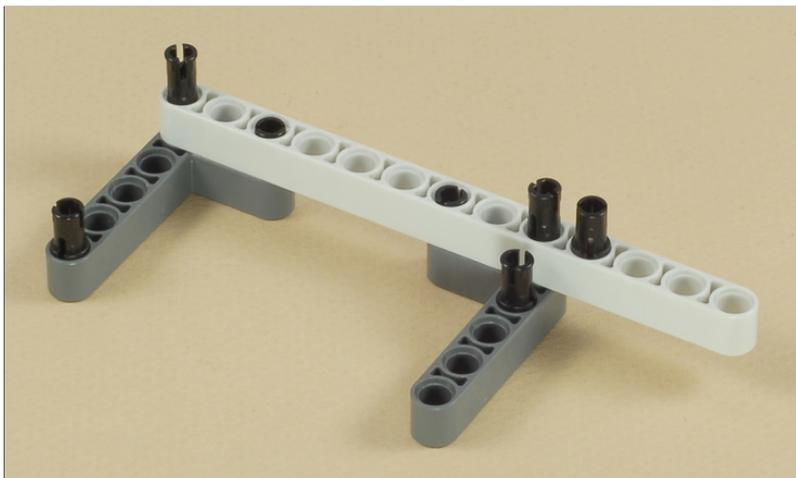
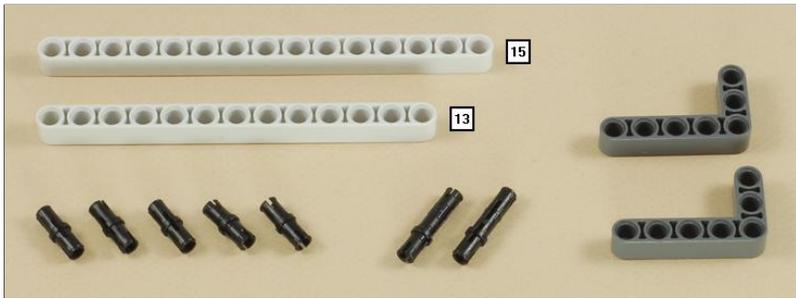
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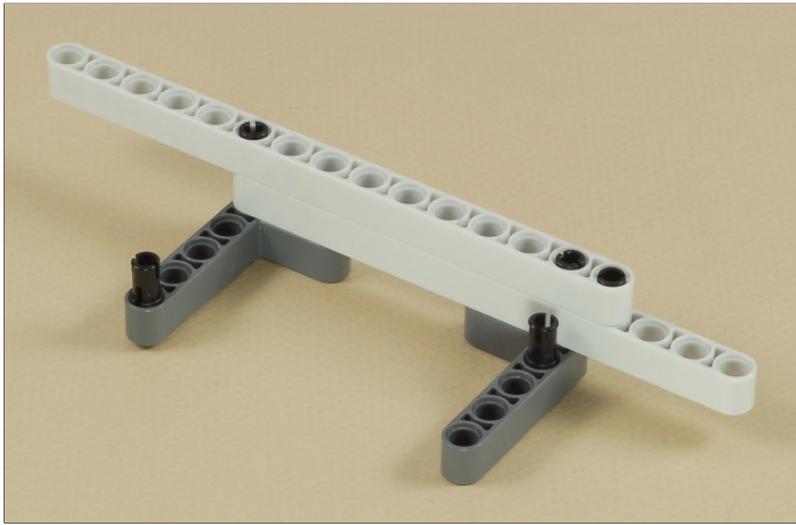


Note that the ski attaches to the NXT at a slight angle.

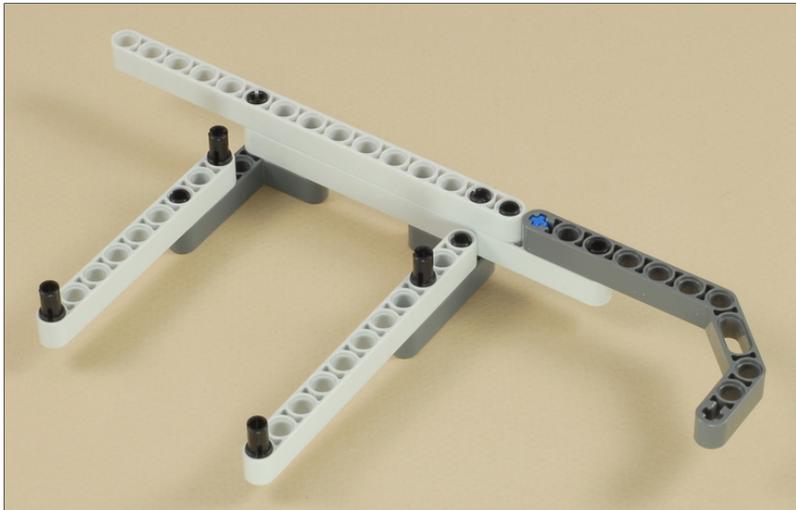
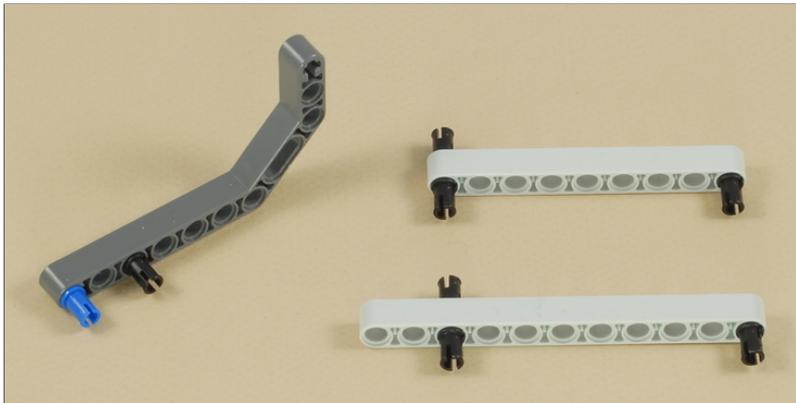
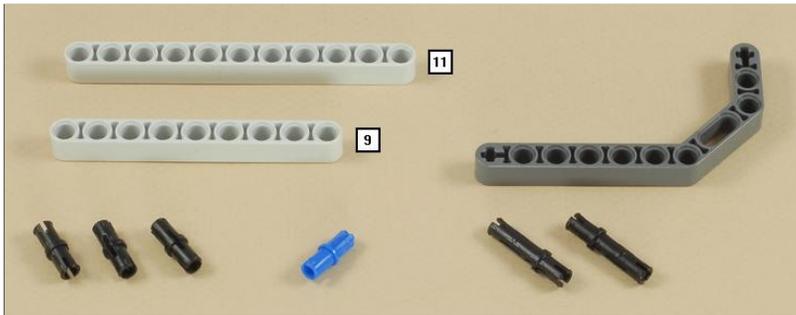


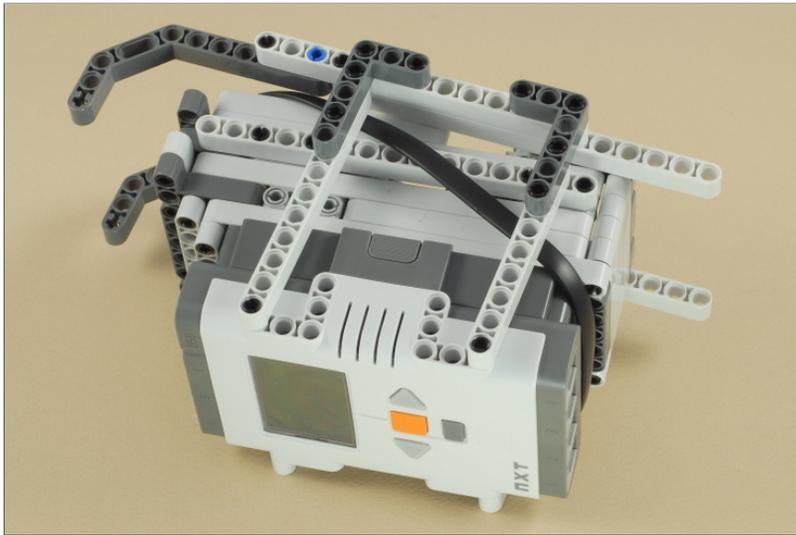
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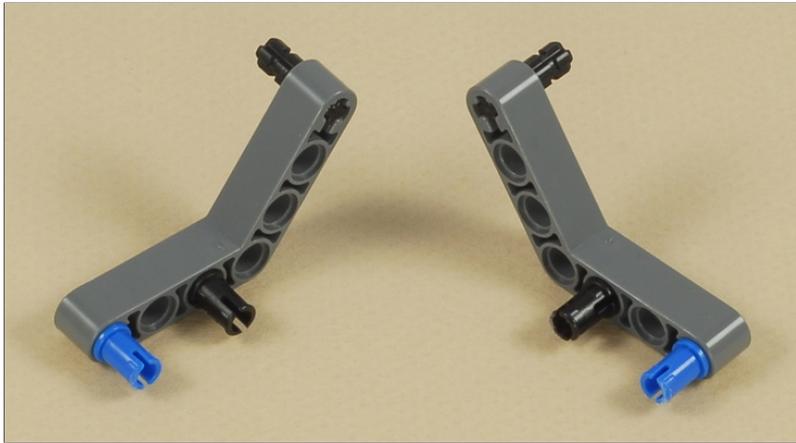


13



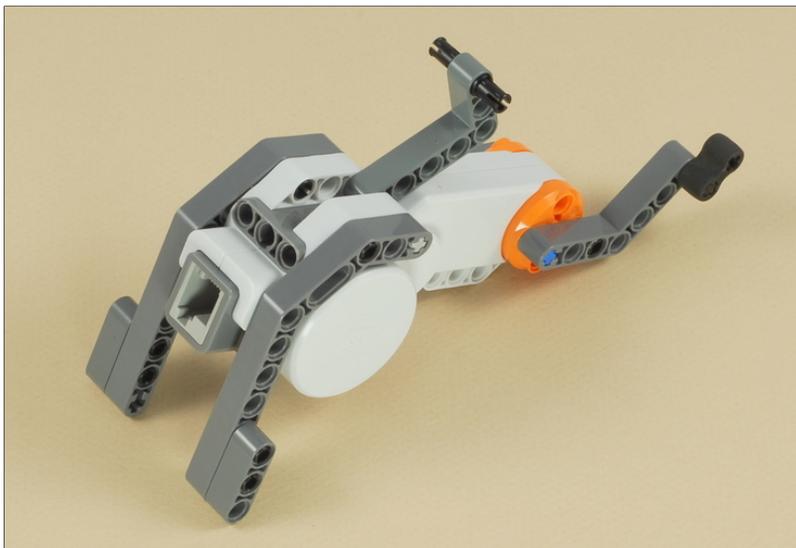
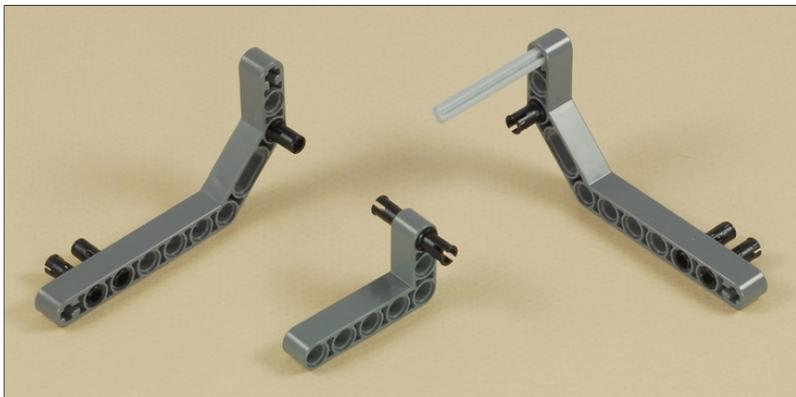
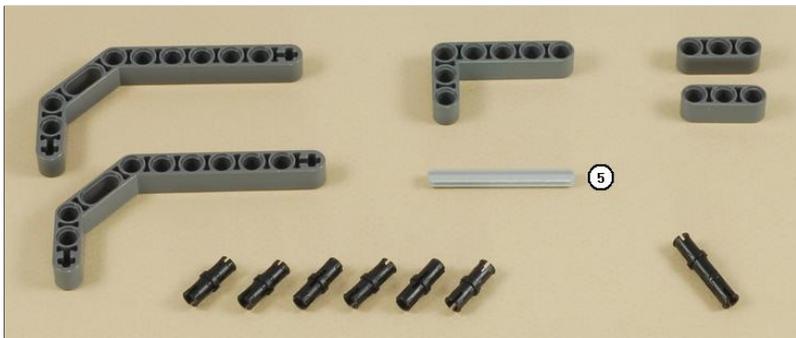


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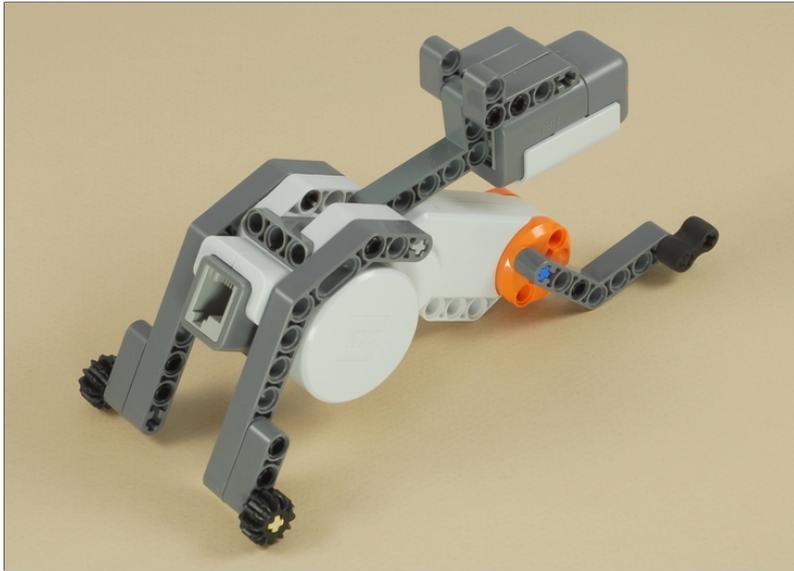
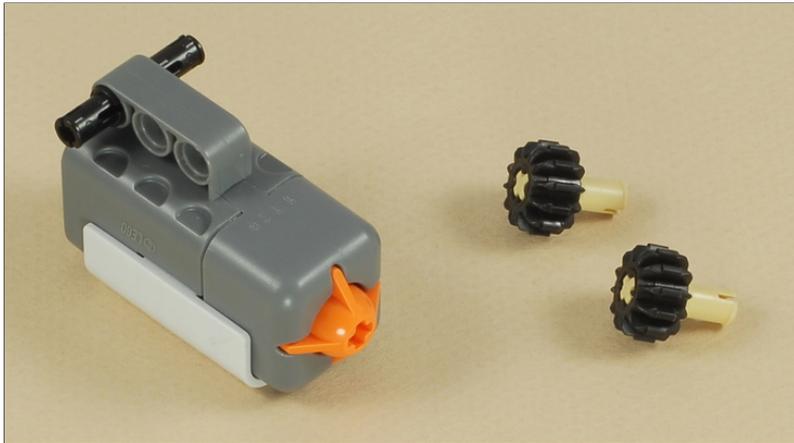




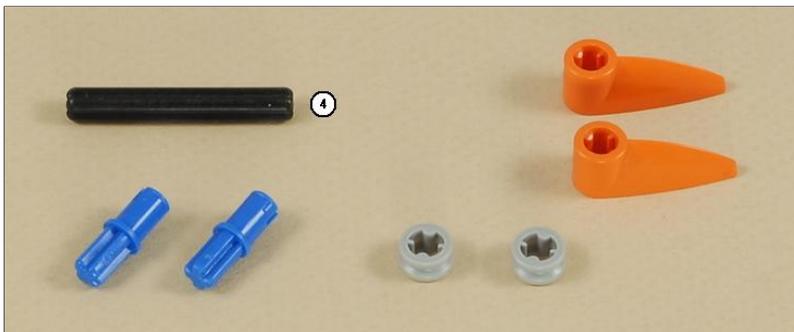
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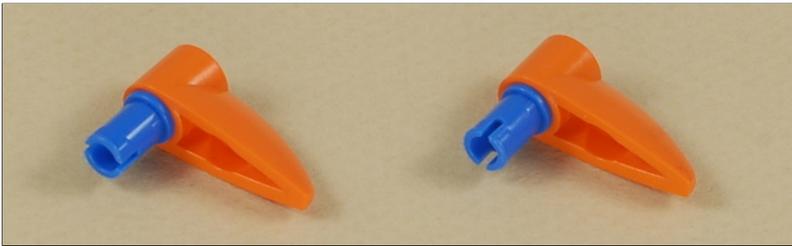


16



17





## 18

Repeat steps 14-17 to build another dog, using the light sensor or sound sensor instead of the touch sensor in step 16. The sensors are only for decoration and will not be used as sensors.



## 19

Use the shortest (20 cm) wire to connect one dog to port **B**, and a medium length (35 cm) wire to connect the other dog to port **C** on the NXT.



## Dog Sled Team Programming

Use the [Dog\\_Sled](#) program for your Dog Sled Team. This is a simple program that just runs all three motors at full power.

## Challenges

- Try the sled by itself without the dogs attached. It's a magic sled!
- Try some different dog designs. For example, point the orange ears upwards for a Doberman.
- Even on smooth carpet, I was not able to get the dogs to drag the NXT on skis without adding the hidden motor. Although the two dog motors can generate plenty of power, traction is the problem. There is not enough weight over the front legs of the dogs for them to grip the ground. Using the same technique to measure the weight balance as that shown [here](#) for the Puppy and other projects, I found that only about 10% of the total weight of the sled + dogs is over the front legs of the dogs. Can you find a solution to the traction problem somehow? Here are some possible ideas:
  - Is there a better paw design that will get more mechanical grip? I had little hooks at one point that dug into the carpet, but they also got snagged on the carpet loops. How do real dogs get enough grip?
  - Get all four legs on the dog to move.
  - Power the back legs instead of the front legs (with the heavier part of the motor over the driven legs).
  - Design a more effective walking/crawling technique, such as maybe using both the left and right legs at the same time rather than alternating left and right (Bunny Sled Team?)
  - Make a rigid connection between the sled and the dogs that transfers some of the weight of the sled to the dogs.
  - Three dogs?

