Lesson 2: Ranger Bot Movement Building Guide

Step 1

**Parts Needed**

- 2x DC Drive Motor
- 2x Motor Mount
- 2x 3" Wheel
- 2x Motor Shaft Hub
- 8x 1/2" SHCS

**Tips**

- The 7/64", 3/32", 5/64" hex keys will be needed to build this model. Some sets may also require a 1/16" hex key.
- Use the motor shaft hub. The axle hub is too small.
- The set screw should connect to the D-flat side of the motor shaft.
- Make sure that the gaps in the motor mounts are facing as shown.
- Note that the shaft of the DC motor is not centered. Ensure that the motor is rotated in the mount so that the shaft is positioned closest to the gap, as shown in the bottom picture.
Lesson 2: Ranger Bot Movement Building Guide

Step 2

Parts Needed

- 4x 1.5” SHCS
- 4x Kep Nut

Tip

- Ensure that the teeth on the nuts face the head of the screw.
Lesson 2: Ranger Bot Movement Building Guide

Step 3

Parts Needed

- 2x Omni Wheel
- 2x Axle Hub
- 2x 100 mm Shaft
- 8x 1/2" SHCS

Tips

- Make sure to use the appropriate hub. The axle hub is smaller than the motor shaft hub.
- Use the 3/32" hex key for the axle hub.
Lesson 2: Ranger Bot Movement Building Guide

Step 4

Parts Needed

- 4x Bronze Bushing
- 2x Shaft Collar

Tip

- Depending on the TETRIX® set, use either the 1/16" or 5/64" hex key for the shaft collar set screw.
Lesson 2: Ranger Bot Movement Building Guide

Parts Needed

1x NXT Rechargeable Battery
1x NXT
2x 3 x 5-Module Angular Beam
2x 9-Module Beam
4x Connector Peg with Bushing
6x Connector Peg with Friction

Step 5

Tip

- Make sure that the NXT rechargeable battery has been attached to the NXT brick.
Lesson 2: Ranger Bot Movement Building Guide

Step 6

**Parts Needed**

- 2X TETRIX® Hard Point Connector
- 4x 5/16" SHCS
- 4x Kep Nut

**Tips**

⚠️ Turn the screws only until the hard point connectors are securely attached to the TETRIX channels.
- Remember: Ensure that the teeth of the nut face the head of the screw.
Lesson 2: Ranger Bot Movement Building Guide

Step 7
Lesson 2: Ranger Bot Movement Building Guide

Step 8

Parts Needed

4x 3-Module Connector Peg with Friction
Lesson 2: Ranger Bot Movement Building Guide

Parts Needed

- 1x HiTechnic DC Motor Control
- 1x HiTechnic Servo Controller
- 4x 3/8” BHCS
- 4x Kep Nut

Tips

- The motor controllers are attached using the button head cap screws. Use the 5/64” hex key for these screws.
- Tighten the screws only until the controllers are securely attached.
- Ensure that the teeth of the nut face the head of the screw.
Lessons

Lesson 2: Ranger Bot Movement Building Guide

Parts Needed

- 1x 12V Rechargeable Battery Pack
- 1x Bracket Switch Mount
- 4x 1/2" SHCS
- 4x Kep Nut

Tip

- Ensure that the teeth of the nut face the head of the screw.
Lesson 2: Ranger Bot Movement Building Guide

Step 11

Parts Needed

1x On/Off Switch
Lesson 2: Ranger Bot Movement Building Guide

Final View
Lesson 2: Ranger Bot Movement Building Guide

Wiring Diagram

Tips

- Tighten the screws on the HiTechnic controller after the wires have been inserted.

⚠️ Complete all wiring before attaching the battery.