Robot 3

Imperial AT-ST
The Imperial All-Terrain Scout Transport, better known as the AT-ST, is a small, agile, armored biped that can carry two Imperial Stormtroopers. Used primarily for scouting and reconnaissance patrols by Imperial troops, the AT-ST is a force to be reckoned with. While not as large or powerful as the AT-AT, its quickness and agility make it a relentless and implacable foe, and its twin laser cannons can make short work of most infantry and light vehicles. AT-STs were used in the battles of Hoth and Endor, as seen in *Episode V: The Empire Strikes Back* and *Episode VI: Return of the Jedi*.

The LEGO Mindstorms version of the AT-ST presented here is an excellent example of a biped robot. Like the other bipeds in this book, the AT-ST walks by shifting its weight from side to side and forward and backward. In some ways, the AT-ST robot is very similar to the Super Battle Droid robot also presented in this book.

**Bricks & Chips...**

**Micro Scout Programs**

Since the AT-ST can walk both forward and backward, you can use any of the programs that come with the Micro Scout to power it.
The Body

The body is the heart of the AT-ST. You will construct it first, and then build each of the separate sub-assemblies that will be added to the body to create the finished AT-ST.

Body Step: Complete

Here is what the body sub-assembly should look like when it is complete.

Body Step: 1

Body Step: 2
Body Step: 3

Body Step: 4

Make sure that the vertical 1x5 liftarm is attached to the axle through the second hole from the top, as shown.

Body Step: 5
Body Step: 6

When adding the axle and gears in this step, make sure that the moving parts at the far end are positioned as shown in this image, with one set pointing straight up and the other straight down. It is also important to make sure the gears allow the #6 axle to be oriented as shown.

Body Step: 7
Body Step: 8

Body Step: 9
Body Step: 10

Flip the body over so that the Micro Scout is on the bottom, and add the pieces as shown.

Body Step: 11
Body Step: 12

Flip the body back over so that the Micro Scout is again on the top, and add the pieces as shown.

Body Step: 13
Body Step: 14

In **Body Step: 14**, you can use any three of the four 16t gears in the DSDK set. We chose to use two red and one gray.

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The Right Leg

Right Leg Step: Complete

Here is what the right leg sub-assembly should look like when it is complete.

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Right Leg Step: 1

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Right Leg Step: 2

Right Leg Step: 3

Make sure the gears mesh together as shown.

Right Leg Step: 4

Right Leg Step: 5
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**Right Leg Step: 6**

![Right Leg Step: 6 diagram]

**Right Leg Step: 7**

![Right Leg Step: 7 diagram]
Right Leg Step: 8
The Left Leg

**Left Leg Step: Complete**
Here is what the left leg sub-assembly should look like when it is complete.

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**Left Leg Step: 1**

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**Left Leg Step: 2**
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Left Leg Step: 3

Make sure the gears mesh together as shown.

Left Leg Step: 4

Left Leg Step: 5
Left Leg Step: 6

Left Leg Step: 7
Left Leg Step: 8

The Face

Face Step: Complete
Here is what the face sub-assembly should look like when it is complete.
Customizing the Face

You might want to add more decoration to the face, or add weapon pods to the sides of the head to accompany the laser cannons already in place, as on the AT-STs from the Star Wars movies. Be careful: Doing so could change the overall balance of the robot. If the AT-ST starts to fall forward on its face, you can compensate for the weight by adjusting the feet farther forward on the legs, or by adding some more bricks to the rear of the AT-ST. Don’t be afraid to experiment!

Face Step: 1
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Face Step: 2

Face Step: 3
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Face Step: 4

Face Step: 5

Face Step: 6
Face Step: 7

Add the dual laser cannons, and the face is complete.
Final Assembly

You are now ready to take all of the sub-assemblies you have made (the right and left legs and the face), and attach them to the body sub-assembly to create the finished AT-ST.

Final Assembly Step: Complete

Here is what the AT-ST should look like when it is complete.

Final Assembly Step: 1

Hold the body with the Micro Scout facing you. Make sure the moving parts on top are aligned as shown.

Final Assembly Step: 2

Attach the right leg to the body. Make sure all the moving parts are aligned as shown.
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Final Assembly Step: 3

Turn the AT-ST around and attach the left leg to the opposite side. Make sure all the moving parts are aligned as shown.

Final Assembly Step: 4
Final Assembly Step: 5

Add the face to the body as shown and your AT-ST is complete!