**The Car with a Lot of Potential Activity –   
Vehicle Building Instructions**

The following step-by-step instructions guide you through the process of building LEGO® vehicles so that, using them, students learn about potential energy.

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|  | 1. Build the base of the car, as shown at left. |
|  | 1. Build one side of the car. |
|  | 1. Build the second side of the car. |
|  | 1. Attach that side to the base from Step 1. |
|  | 1. The base should now look like the image at left. |
|  | 1. Attaching a support, as shown. |
|  | 1. Shown is the base from the top, with support attached. |
|  | 1. Attach another supporting beam on the inside (see image at left). |
|  | 1. Construct the supports for the second side, as shown. |
|  | 1. Create the piece shown (inset) and attach it to the base of the car, as shown. |
|  | 1. Create the gear box by starting with the pieces shown at left. |
|  | 1. Add gears to the first side and then the other side. |
|  | 1. From the top, the gear box should appear as shown at left. |
|  | 1. Construct an additional gear on an axle, using the pieces shown at let. |
|  | 1. Attach the additional gear to the gear box. Attach the fully assembled gear box to the car. |
|  | 1. Refer to the two images at left for proper constructing and attaching of the gear box to the car. |
|  | 1. Add wheels to the gear box using the pieces shown at left. |
|  | 1. The car base should look like the image at left. |
|  | 1. Using the pieces shown at left, construct the engine. |
|  | 1. Use a beam piece to add an axle piece to your vehicle. |
|  | 1. Add the engine parts (from Step 19) to the axel. |
|  | 1. Shown at left is a view of the car from the side. |
|  | 1. Arrange the car on a desk as shown in the image at left. |
|  | 1. Add on the parts for the engine (from Step 22). |
|  | 1. Using the following pieces, add a rubber band, as shown at left. |
|  | 1. Add the rubber band component to the engine, as shown at left. |
|  | 1. Shown is the assembled rubber band/axle view from the front of the car. |
|  | 1. Using the following pieces, assemble them as shown at left, bottom. |
|  | 1. Arrange the car on a desk as shown in the image at left. |
|  | 1. Add the parts to the car as shown at left. |
|  | 1. Using the parts shown at left (top), assemble the front wheel. Find the following parts and assemble it on the car, as shown at left (bottom).  Note: This is the caster wheel; it is used for the car’s stability. |
|  | 1. Check the gear train is properly connected before testing/operating the vehicle. |
|  | 1. Turn the handle to add elastic potential energy into the car. |