

42147 Dump Truck

Set adapted by Alex Charbonneau and tested by Natalie Charbonneau.

Looking for a treat for construction site fans? Kids aged 7 and up will love building and playing with this LEGO® Technic™ Dump Truck (42147) toy set. It's a great introduction to the world of LEGO Technic and helps young builders learn new engineering skills. And with the LEGO Builder app, kids gain confidence as they build.

Construction role play

- Kids will love steering the toy Dump Truck around their make-believe construction site before lifting the tipper to drop off their load. Then, when they're ready for something new, they can rebuild the model to create an Excavator Toy for more role-play adventures.

Measurements

- This LEGO® Technic™ building set measures over 3 in. (8 cm) high, 5.5 in. (15 cm) long and 2 in. (5 cm) wide

An introduction to engineering

- LEGO® Technic™ buildable model sets feature realistic movement and mechanisms that introduce young LEGO builders to the universe of engineering

The front of the box shows a yellow and blue dump truck backed up to a sand dune. Its bed is fully tilted upwards, indicating it has just unloaded a bunch of sand. In the background is a blue sky with clouds. A treeline can be seen over the top of the sand dunes.

The left and right sides of the box show a side view of the dump truck, with its bed fully tilted upwards. The top of the box shows a life-size picture of a wheel from the dump truck to give a sense of scale.

The back of the box shows an excavator on a gray background. The excavator has a large boom which extends from its yellow body. It has four wheels mounted on a chassis. At the end of its boom is a large claw for digging in the dirt! The boom is hinged in multiple locations, and it can swivel on the wheeled base to allow the operator to dig almost anywhere! The excavator is the alternate build for the dump truck. An inset view shows the dump truck, with an arrow pointing to a small picture of the excavator, indicating the dump truck can be rebuilt into the excavator.

The build is 177 pieces, and the main build is 90 building steps. The alternate build is 73 building steps.

Welcome to text-based instructions from LEGO for the Blind. Before you start building, here are some terms we'll be using:

- In Front of/Front: towards you.
- Behind/Back: away from you.
- Up: towards the ceiling.
- Down: towards the floor.
- Stud: the bump on a LEGO brick. Example: A 2x1 brick has two studs on it.
- Vertically: going from front to behind.
- Horizontally: going from left to right.
- Upright: pointing up towards the ceiling.
- That one/ppp: previously placed piece.
- Plate: piece with studs.
- Tile: smooth piece without studs (unless otherwise specified)
- Symmetrically: a mirror image. Example: If you place a 2x1 brick with technic connector on the front wall at the right, connector to the front, and then place another such piece symmetrically on the back wall, at the right, the technic connector of the second piece should point to the back, since it will be placed symmetrically.
- Centered-vertically: even amount of space in front of and behind piece
- Centered-horizontally: even amount of space to the left and right of piece.

- Row: studs lined up from left to right.
- Column: studs lined up from top to bottom.

For builders with low vision, or a sighted building partner may want to follow along with the printed visual instructions that come with each kit or PDF versions are always online at LEGO.com:

(<https://www.lego.com/en-us/service/buildinginstructions/42147>) As low vision users may benefit from viewing the instructions on a personal device where they can zoom in on content and use assistive technologies to enhance the visuals.

Sorting the pieces:

To begin a successful build, it helps to sort the pieces into groups, bags or small containers. Have a friend or family member do this in advance following the instructions below. You will see that the pieces should be sorted according to the building steps in the kit. Doing this in advance makes locating the pieces for each step easier. See below on how to sort the pieces to correspond to the steps in this set. Number the containers using letters A-Z, numbers or meaningful names. The parts will be sorted into one or a small number of steps in the instructions. Example: Steps 1-3 means collect all the parts used in steps 1, 2 and 3, and put them in one container.

This LEGO set comes with three unlabeled bags, a sticker sheet, and two instruction booklets. Some larger pieces are loose in the box. There are stickers to put onto pieces in steps 53, 55, 57, 64, 70, 81, and 85. If you want to use the stickers, they should be put on as you or your friend sort the pieces! Sort the pieces into groups as described below. Note that where there are multiple colors of the same brick in a step, the colors will be split into two groups to make telling the difference easier for the builder! LEGO includes a few spare parts in case you lose something. Set these into their own group away from the rest, in case you need them later.

Group 1 contains the pieces for steps 1-4.

Group 2 contains the pieces for steps 5-12.

Group 3 contains the pieces for steps 13-22.

Group 4 contains the pieces for steps 23-26.

Group 5 contains the pieces for steps 27-29.

Group 6 contains the pieces for steps 30-37.

Group 7 contains the pieces for steps 38-46.

Group 8 contains the pieces for steps 47-51.

Group 9 contains the pieces for steps 52-59.

Group 10 contains the pieces for steps 60-66.

Group 11 contains the pieces for steps 67-72.

Group 12 contains the pieces for steps 73-80. Note, there will be two different colors of pins in this group, which are discernable to the builder by their friction!

Group 13 contains the pieces for steps 81-90.

Building Instructions:

Main Build - Dump Truck

A note on LEGO Technic™ part names. These parts are somewhat different from regular LEGO bricks. I'll include some definitions in case the builder or helper is not familiar with LEGO Technic™.

Axles - An axle is a connector which has an X shaped cross-section. Because their cross section is not round, anything connected to an axle using an axle-hole will rotate with that axle. Axles are longer than they are wide, and the length of an axle corresponds with how many bricks long it is. Aka a 3L axle is three bricks long. Axles come in a variety of lengths, with a 2L axle being the shortest available. They may be combined with pins, or have circular stops on them. A stop prevents the axle from sliding through an axle-hole at a specific point on the axle.

Pins - A pin is a connector which has a circular cross section and a flanged notch out of one or both ends. This flanged notch allows them to click into bricks with a pin-hole. Pins come with and without friction ridges, which are small bumps on the pin which prevent them from rotating freely. For standard pins, black is a high friction pin, and gray is a low friction pin. A standard length pin is two brick lengths long, with a stop in the middle. This prevents a brick from being pushed from one side of the pin to the other. A 1L pin is one brick long and still retains the stop, however it also includes a hollow stud at the other end. A 3L pin is three bricks long, and only contains a stop at one side, allowing two bricks to be pushed onto the other side of the pin. Pins may also have one side which is an axle.

lift-arms - A lift-arm is a basic structural element, similar to a brick or a plate, but usually without any studs. It is a beam with rounded ends and with holes in it, with the same spacing as the studs on a LEGO brick. lift-arms come in a variety of lengths, including a 1x1 lift-arm which looks like a cylinder. Thick lift-arms are as wide as a LEGO brick, and thin lift-arms are half as wide as a LEGO brick, but not the same thickness as a LEGO plate! The holes in a lift-arm arm may accept axles or pins. They also come in a variety of shapes, including tees, ells and triangles.

Gears - A gear is a functional element. They are typically discs with teeth on the outside, there are also worm gears which look like a spiraling cylinder! Gears connected by axles transmit or even transform rotational motion!

Axle and Pin Connectors - These elements are typically smaller than lift-arms, and are used to connect some combination of pins or axles. They might have pins or axles, as well as axle or pin-holes. They have a lot of different angle combinations! The simplest just connects two axles or pins together in a straight line.

Bushes/Bushings - LEGO Technic™ uses bushes largely as spacers, but they also can reduce friction between rotating parts, or can form useful elements such as handles. Bushes are typically light gray, generally cylindrical, and have an axle-hole running through the middle. They have a flange at the front and back to make them easier to pull on and off.

Open group 1

We'll start by building the chassis at the cab-end of the truck! It won't look like much for a while, but be patient!

1. Find a dark gray 3x3 L-shaped thin lift-arm, and two light gray 3L axles. Place the lift-arm flat, with the corner at the front right, one leg vertically long at the right and one horizontally long at the front. Place axles in the axle-holes at the corner and at the back, skipping over the pin-hole. Push the axles in only until they are flush with the bottom side.

2. Place another dark gray 3x3 L-shaped thin lift-arm on the one from the previous step, oriented the same way. Do this by pushing it down over the two axles from the previous step until the lift-arms touch.

3. Find a blue 3L pin and a light gray 3x2 T-shaped thick lift-arm, with an axle-hole parallel to its long axis. Place the pin with the stop downwards, into the pin-hole directly to the left of the corner of the lift-arms from step 1-2. Place the axle-hole of the lift-arm over the axle on the back, with the long portion of the lift-arm on the right. Rotate the assembly 90 degrees so that the T-shaped lift-arm is on top and the L shaped lift-arm is at the back on the left.

4. Find a dark gray 9L thick lift-arm and place it horizontally long, with the far left pin-hole over the blue pin from the previous step. The second hole from the left should slide over the axle in the corner from step 1. Push the lift-arm all the way down until it is against the L-shaped lift-arm from step 2. This 9L lift-arm is at the bottom of the truck's chassis, so the side that is currently down is the very bottom of the dump truck! It should be flat on the building surface. It forms the centerline of the truck, so most of the build will be symmetric about this lift-arm.

Open group 2

Set the truck aside for now. We're going to start building the headlight assembly.

5. Find two light gray 1L pins, and a dark gray 2x2 T-shaped thick lift-arm, with an axle-hole parallel to its long axis. Place the T-shaped lift-arm with the two pin-holes at the back and the axle-hole at the front. Place two 1L pins into the pin-holes with the studs up.
6. Find two transparent clear 1x1 round tiles. Place these on top of the studs from the previous pieces. These will eventually be half the headlights of the truck!
7. Find a black 6L axle and a light gray thin bush. Place the axle into the axle-hole in the lift-arm from the previous piece, extending to the right and flush with the left side of the axle-hole. Slide the bush on the axle all the way to the lift-arm. Place the original chassis assembly in front of you in its original orientation, horizontally long with the lift-arms from step 1-2 pointing upwards and at the back of the assembly.
8. Slide the assembly from steps 5-7 towards you from the back, through the far left axle-hole, with the headlight assembly on top and at the back. The clear tiles should be on the left.
9. Slide a dark gray pin with a perpendicular axle-hole over the 6L axle from the headlight assembly.
10. Slide two dark gray 3x3 L-shaped thin lift-arm over the axles and pins from previous steps. Slide them over in the same orientation as the lift-arms from steps 1 and 2 so that they are mirrored about the 9L lift-arm which is the center of the truck. The right six holes of the 9L lift-arm should be open at this point.
11. Slide a light gray bush over the axle in front of the previous pieces.
12. Find two transparent clear 1x1 round tiles, a dark gray 2x2 T-shaped thick lift-arm, with an axle-hole parallel to its long axis, and two light gray 1L pins. Place the lift-arm on the axle of the headlight assembly, with the pin-holes on top. Place the two 1L pins into the holes on the previous piece, with the studs at the left. Place the round tiles onto the studs on the previous piece. There should now be four headlights on the left of the truck!

Open group 3

Set the chassis aside. Now we'll start building the steering mechanism for the front wheels!

13. Find a light gray 3L axle and a light gray axle connector with a perpendicular pin-hole. The axle-hole in the connector should end at the pin, so that if the center lines were extended it would make the shape a capital T. Place the connector with the axle-hole horizontal and the pin-hole on the left, going up and down. Insert the axle into the axle-hole.
14. Find a light gray 2L pin and a dark gray perpendicular axle and pin connector. The center lines are offset by a brick length so that if the center lines were extended it would make the shape of an X when viewed from above. Slide the axle-hole of the connector over the previous piece, with the pin-hole at the back pointing up and down. Slide it all the way until it touches the axle and pin connector from the previous step. Put the pin in the pin-hole of the previous piece, pointing up.
15. Place a light gray axle connector with a perpendicular pin-hole symmetrically to the one from step 13.
16. Find two light gray 3L lift-arms with pins perpendicular to its short axis. Viewed from the side, this piece has a pin extending up at the left and right ends, and a perpendicular pin-hole under each pin. A pin-hole is in the middle, parallel to the pins. Place one into the bottom of the previous piece, extending towards the front, with the pins facing upwards. Place the other symmetrically on the left side.

17. Find four light gray 2L pins. Place one in the front pinhole of each of the previous pieces, pointing outwards. The front wheels will mount on these pins later on! Place the other two with the middle pin-hole of both of the lift-arms from the previous step, with the pin extending upwards.

18. Find two dark gray 5L thick lift-arms. Place one horizontally long on the previous pieces. It should only fit using the far left and right pin-holes on the lift-arm. Place the other lift-arm directly in front. This completes the steering mechanism! If you hold one of the previous pieces, the other should move freely in a roughly half-circular motion. Now we'll attach it to the chassis!

19. Place the chassis horizontally long in front of you with the headlights at the left, bottom of the truck down (as defined in step 4). Take the steering mechanism and place it vertically long on the right end of the chassis, with the upwards peg at the right, and slide the mechanism all the way to the left, centered vertically. It should slide smoothly. The lift-arm with the pegs for the front wheels should be even with the bottom of the chassis. The left 1x5 thick lift-arm from the steering mechanism should be lined up underneath a 1x3 thick lift-arm on top of the chassis.

20. Place two blue 3L pins, with the stop upwards, and place them through the 1x3 thick lift-arm at the top of the truck. Push each one all the way down to the stop, through the left 1x5 thick lift-arm of the steering assembly.

21. Find two blue 3L pins. Slide the first into the far right pin-hole of the build, from front to back with the stop at the front. It should extend one brick length to the front and back of the build. Skip a hole and place the other pin in the same way.

22. Find a dark gray 5.5L axle with a stop 1L from one end. Slide it into the hole between the two previous pieces from back to front with the stop at the back. It should sit loosely in the hole.

Now we are going to start building the back of the chassis!

Open group 4

23. Find a dark gray 9L lift-arm and a tan 3L pin. Place the lift-arm in front of you horizontally long, smooth side up. Place the short side of the pin in the far right hole, with the pin extending 2L to the front.

24. Find a yellow 5L axle and a light gray 3L thin lift-arm with a pin at one end and a thick axle-hole at the other. Place the axle into the thick axle-hole of the lift-arm, centering it. It should extend 2L to either side of the lift-arm. Now attach this assembly to the 9L lift-arm from the previous step, with the axle next to the pin from the previous step, the pin two steps to the left and the thin side of the lift-arm at the back against the 9L lift-arm. The pin should click into place and the axle should extend 1L past the back edge of the lift-arm from the previous step.

25. Place two black 2L pins into the lift-arm from step 23, on the back side, next to each other to the left of the pin from the previous piece.

26. Find a black 3L thick lift-arm, with the bottom hole a perpendicular axle-hole. Place the two pin-holes onto the previous pieces (the pins), with the axle-hole on the left. There should be three open holes at the far left of the 9L lift-arm, and the axle hole should go up and down.

Open group 5

27. Keeping this assembly in the same orientation, attach it to the chassis by placing the open holes in the 9L lift-arm onto the two pins from step 21, and the axle from step 22. The previous piece should be at the back of the build.

28. Find two black 3x5 thin lift-arms shaped like a triangle, and two blue 3L pins. Place a lift-arm horizontally long in front of you with the point of the triangle at the back, and push two pins in from the back through the second and fourth holes from the left, with the stop at the back. Push the other lift-arm over the pins in the same orientation as the first lift-arm. The pins should extend 1L on either side of the lift-arms, there should be an exposed axle-hole at the horizontal ends, and a vertical row of 3 pin-holes between the pins. Find the pin hole at the back of this vertical row. It should be at the point of the triangle. Attach this pin-hole onto the pin at the far right of the chassis from the front and push it all the way back to the 9L lift-arm.. This assembly should be free to rotate! This is the hinge where the dump bucket will attach to the chassis of the truck!

29. Find a dark gray 9L thick lift-arm. Attach this to the front right of the chassis with the far left pin-hole over the far left pin from step 21. The right hole should be attached to the same pin as the dump bucket hinge from the previous step. An axle should extend to the front from the second hole from the left on this lift-arm, and another should extend to the front and back from the second hole from the right.

Open group 6

30. Find two dark gray 1L thick lift-arm (this looks just like a cylinder) and two tan 3L pins. Place the 1L lift-arms onto the side of the pins without a stop and push them on so the pin extends on either side by 1L. Attach these to the third hole from the right on both sides of the chassis. The back wheels will mount to these pegs later on!

31. Find a dark gray 2L thick lift-arm with the bottom hole a perpendicular axle-hole, and a light gray thin bush. Place the axle-hole of the lift-arm onto the axle extending from the eighth hole from the right and slide it all the way up to the chassis. Slide the bush onto the same axle, all the way to the previous piece.

32. Find two dark gray 2L thick lift-arms with the bottom hole a perpendicular axle-hole, two 1L pins, and two transparent red 1x1 round tiles. Place the round tiles onto the studs of the pins, and put these into the pin-holes of the lift-arms. Place these onto the axle extending front and back at the right side of the chassis. Place them so that the pin-holes are over the axles and the round tiles are at the right. These form the taillights for the truck!

33. Find two 2L black pins and place these in the fifth and sixth holes from the right in the chassis, extending to the front.

34. Find a black 3L thick lift-arm, with the bottom hole a perpendicular axle-hole. Place the two pin-holes on the previous pieces, with the axle-hole on the left. There should be a gap to the right between this piece and the wheel mount from step 30.

35. Find a black 2L thick lift-arm with one pin-hole and one axle-hole, and one tan 4L axle with a stop. The 4L axle has a short and a long end. Place the short end into the axle-hole of the lift-arm. Find the three pins sticking upwards on the left side of the chassis. Place the pin-hole of the lift-arm over the right hand one of these, with the axle sticking upwards on the left.

36. Find a black 3x3 T-shaped thick lift-arm. With the top of the tee vertically and the stem on the right, place the far right hole over the axle from the previous step. The two pins sticking up from the chassis should now fit into the front and back holes on the top of the tee.

37. Find a dark gray straight axle connector and a dark gray straight axle connector with a pin-hole in the middle. Place the pin-hole of the connector with a pin-hole onto the axle from step 35 so that it extends front and back. Place the straight connector onto the end of the axle, extending upwards.

Open group 7

Now we're going to start building the cab of the truck!

38. Find a black 2L pin and a black 2L thick lift-arm with one pin-hole and one axle-hole. Place the pin through the pin-hole of the lift-arm. Place the lift-arm horizontally long in front of you with the pin at the back and the smooth side up.

39. Place a light gray 3L axle through the axle-hole on the lift-arm, extending to the front, pushing it in only until it is flush with the back.

40. Find a dark gray axle connector with a perpendicular axle-hole and a black 2L thick lift-arm with one pin-hole and one axle-hole. Place the axle connector over the previous piece, with the long part pointing downwards. It should slide all the way to the lift-arm from step 38 and make a tee with the axle. Place the axle-hole of the new lift-arm onto the same axle, with the pin-hole at the right (symmetrical to the lift-arm from step 38).

41. Find a black 2L pin and a blue axle/pin combo. Place the 2L pin into the pin-hole of the previous piece, extending to the front. Place the axle of the axle/pin combo into the bottom of the axle connector from the previous step so that it extends downwards.

42. Place this assembly, in the same orientation, onto the truck. Place the axle/pin combo into the middle hole of the T-shaped lift-arm from step 36. The two lift-arms of the new assembly should be to the front and back of the upwards facing straight connector from step 37.

43. Find a yellow 4x2 L-shaped lift-arm, and a blue axle/pin combo. Place the lift-arm in front of you, running horizontally long, with the short leg upwards. Place the pin of the axle/pin combo into the far right, bottom hole, with the axle at the front.

44. Find a dark gray straight axle connector with a pin-hole in the middle and a blue axle/pin combo. Place the axle connector on to the axle of the previous piece.

Place the axle of the axle/pin combo into the axle-hole at the front of the previous piece.

45. Find a black axle/pin combo with a 2L axle. Place the axle through the far left axle-hole of the lift-arm, slide it in from back to front so that the pin is at the back and the axle extends 1L past the front of the lift-arm.

Now let's put this on the truck!

46. Pick up the assembly using the axle connector from step 44. Hold it so the pin-hole on the connector is aligned up and down. Rotate the lift-arm downwards so that it's shaped like an upside down L, with the long leg pointing down and the short leg horizontally at the top, extending to your left. Keep this orientation and attach this assembly to the back of the truck, putting the lowest pin-hole into the back pin of the assembly you finished in step 42. The pin-hole of the connector should align with an upwards pointing axle connector.

Open group 8

47. Find a light gray 3L axle and a black 12 tooth gear. This gear is about two studs in diameter, and looks kind of like a ribbed ball with an axle-hole in the middle. Put the axle through the pin-hole in the axle connector at the top of the build, with the axle extending upwards by 1L. Place the gear onto the axle so that it is on top of the truck. This will be how you steer the truck!

48. Find two yellow 3L thick lift-arms, one dark gray 1L thick lift-arm, one blue 3L pin, and two black 2L pins. Place one of the 3L lift-arms in front of you, horizontally long with the smooth side on top. Place a black pin into the back of the first and third holes. Place the blue pin into the middle hole so that it extends 1L to the front and 1L to the back. Attach the other lift-arm behind the first one, offset one hole to the left. There should be two exposed pins on the front lift-arm, one at the back right and one at the front middle. Attach the 1L lift-arm to the exposed pin at the front. Keeping the same orientation, place the back right pin into the front of the short leg of the L-shaped lift-arm from step 43, extending to the left. This should be the only pin-hole at the top of the truck.

49. Find two light gray 3L axles, one dark gray straight axle connector, and two light gray bushes. Place one axle into each end of the connector, and one bush over each axle. Push the axles all the way in and slide the bushes up to the connector. Place this assembly into the front far left pin-hole of the previous assembly. It should float freely.

50. Find two yellow 3L thick lift-arms, yellow 4x2 L-shaped lift-arm, and three black 2L pins. Place one 3L lift-arm in front of you, horizontally long, and place all three pins into the holes on the front. Place another 3L lift-arm overhanging it to the left. Orient the L shaped lift-arm so that the long leg extends downward and the short leg extends to the left. Place the left pin-hole on the right pin of the first lift-arm. Keeping this orientation, place this entire assembly onto the truck. This will match the back side of the truck. The far left pin-hole goes over the axles from the previous step, the top right corner attaches to the top forward facing pin on the model, and the third pin-hole down goes over the pin below the top pin.

51. Place a black axle/pin combo with a 2L axle into the bottom right axle-hole of the previous assembly, with the pin at the front.

Open group 9

Now we'll build the front bumper of the truck!

52. Find a yellow 3L thick lift-arm and two black 2L pins. If you are using stickers, the lift-arm should have the license plate number on it! That is KM42147, where the last part of the license number is the set number! Place the lift-arm horizontally long in front of you, with the stickered side at the front, your helper can help get the lettering oriented upright. If you're not using stickers, either smooth side can be at the front! Place the pins pointing upwards in the first and third holes.

53. This step tells you how to place the sticker and is skipped.

54. Find a yellow 7L thick lift-arm and place this centered horizontally over the previous piece. If you are using stickers the sticker should be at the front. This sticker has the truck's grill pattern on it! The lift-arm should extend 2L on either side of the previous piece.

55. This step tells you how to place the sticker and is skipped.

56. Find four black 2L pins and place these in the two leftmost and two rightmost pin-holes, pointing upwards.

57. Find a yellow 5L thick lift-arm and place this centered horizontally on the two inner pins from the previous step. If you are using stickers, this has the truck's hood emblem on it, and the sticker should face to the front. The truck's emblem looks like a small gray diamond.

58. Find two dark gray pins with a perpendicular pin-hole and place the pins into the second and fourth pin-holes of the previous piece, with the pin-holes aligned horizontally. Rotate the assembly 90 degrees so that the stickers are on the left.

59. The chassis has a single pin on the far left which is not rigidly attached, and may have fallen over. Find this pin and point it upwards. Keeping the orientation from the previous step, place the bumper assembly onto the left of the truck by placing the center pin-hole over the pin. Its front and back ends should rest on the headlights, and the stickers should be at the left. It's starting to look like a truck now!

Open group 10

Now we'll build the first door!

60. Find a yellow 5L thick lift-arm and place this in front of you horizontally long with the smooth side at the front.

61. Find three red 1L pins. Place one into the far left hole with the stud up. Skip a hole, and place the other two next to each other in the next two holes. The second hole from the left and the far right hole should be open.

62. Find a yellow 1x3 plate and two yellow 1x1 slope tiles. Place a slope tile over the far left stud sloping down to the right. Place the plate horizontally long to the right of this piece. Place the other slope tile on the far right stud of the plate, sloping down to the left.

63. Keeping the left end at the left, flip the assembly so the slopes are at the bottom. Find a blue axle/pin combo and place the pin into the second hole from the left with the axle pointing up.

64. Find a dark blue axle connector with a triangular fairing and a perpendicular axle-hole. Place this onto the axle from the previous piece. The smooth side of the fairing should be at the front and should slope up to the left. If you're using stickers, this piece has a yellow stripe on it!

65. Find a black axle with a perpendicular pin-hole at one end and place this into the perpendicular axle-hole from the previous piece, so that the pin-hole is aligned front to back (not up and down) and hangs off the left of the build.

66. Place the far right pin-hole onto the back left upwards pointing pin on the truck's bumper (assembly from steps 52-59). This is the passenger side door (if you're in the US! It might be different where you live!) It is now all the way open, swing it clockwise until the door is closed. The pin-hole on the previous piece should connect to a pin on the back of the cab

Open group 11

Now to build the other door.

For steps 67-69, repeat steps 61-63.

70. Keeping the axle from the previous step pointing upwards, rotate the assembly so left is now right. Find a dark blue axle connector with a triangular fairing and a perpendicular axle-hole. Place this onto the axle from the previous piece. The smooth side of the fairing should be at the front and should slope up to the right. If you're using stickers, this piece has a yellow stripe on it!

71. Find a black axle with a perpendicular pin-hole at one end. Place this into the perpendicular axle-hole from the previous piece, so that the pin-hole is aligned vertically and hangs off the right of the build.

72. Place the far left pin-hole onto the front left upwards pointing pin on the truck's bumper (assembly from steps 52-59), the mirror of what we did for the previous door! Close it and attach it like we did previously.

Open group 12

Note! There are three black 2L pins and one gray 2L pin in this group of parts! You can tell the difference between these colors by placing them in an axle-hole and trying to spin the part while holding the pin. A gray pin will allow the part to spin easily, while a black pin will require significant force!

73. Find a black 6L axle, a dark gray 4L thin lift-arm, a dark gray 1x1 thick lift-arm, and a light gray 1L bush. Place the lift-arm horizontally long in front of you, with the smooth side upwards. Place the axle into the left axle-hole from the front, extending to the front, and flush with the back of the lift-arm. Slide the bush over the axle from the front, with the circular end towards the back, and slide it all the way to the lift-arm. Now, slide the axle from the back through the two pin-holes at the top of the far left of the build. When the axle is almost through the first pin-hole, place the 1L lift-arm in line with the pinholes and push the axle through it. The lift-arm should now be nearly upright, sloping down slightly to the left. Rotate the 4L lift-arm until it is nearly straight up and down, but slopes slightly to the right. Connect the top axle-hole of the lift-arm to the axle at the back left of the top of the cab.

74. Slide a light gray 1L bush over the axle from the previous step until it touches the front pin-hole.

75. Connect a dark gray lift arm to the axle from step 73 to the top front of the cab, just like the lift-arm from step 73.

Now we'll start building the bed of the dump truck! Set the truck aside for now.

76. Find a dark blue 11x3 curved panel and three blue 3L pins. Place the panel horizontally long in front of you, concave up, with the row of five pin-holes at the front. We'll reference this row of pin-holes over the next few steps. Place pins with the stop at the back into the first three pin-holes on the left. Do not place these into the upwards facing pin-holes at the back.

77. Find two black 2L pins and place these into the upward facing pin-holes at the back of the panel, one at the left and one at the right near the end of the panel.

78. Find a blue axle/pin combo and a black 3L thick lift-arm, with the bottom hole a perpendicular axle-hole. Place an axle/pin combo into the axle-hole at one end. With the pin from this assembly at the left and pointing upwards, place this onto the far left 3L pin from step 76 and slide it all the way up to the panel.

79. Find a black 3x3 T-shaped thick lift-arm and a light gray 2L pin. Connect the flat part of the T-shaped lift-arm to the two remaining 3L pins from step 76, with the stem of the tee pointing downwards. Place the pin into the middle hole of the stem extending to the front.

80. Place the truck in front of you, with the cab at the left and the dump bed hinge assembly at the right. Now connect the dump bed to the dump bed hinge assembly by connecting the two pins on the hinge assembly into the last two holes in the row of five pin-holes from step 76. There should now be a row of five pins extending to the front. The dump bed should hinge up and down. Rotate the truck 180 degrees so the cab is on the right and the dump bed is on the left.

Open group 13

81. Find a dark blue 11L thick lift-arm and a black 2L pin. If you are using stickers, this lift-arm will have a thin yellow stripe with the phrase "AP TRANSPORT" on it. Place this on the two upward pointing studs on the dump bed. The sticker should be on the right if you are using it. Center it horizontally so there is one stud hole to the left and right of the pins in the dump bed. Place the black pin into the far right hole of the lift-arm, pointing upwards. Rotate the truck 180 degrees so the cab is on the left and the dump bed is on the right. The dump bed should be free to rotate now! Now we're going to make a mechanism to raise and lower the bed.

82. Find a dark gray 5L thick lift-arm, a black 2L pin, and a dark gray pin with a perpendicular pin-hole. With the lift-arm vertically long in front of you, place the black pin into the back pin-hole extending to the left. Place the pin-hole over the previous piece with the pin pointing down. Find the axle which extends to the front between the two wheel pins on the front of the build. Attached to this axle is an upwards facing pin-hole (if you spin the axle, this pin hole should be easier to find).. Place the pin from the previous piece into this pin-hole from the top. The lift-arm should be on the right facing forwards.

83. Feel along the row of pins at the front of the dump bed and find the bottom one. Keeping the smooth side of the lift-arm on top, rotate the assembly from the previous step counterclockwise 90 degrees towards the right side of the truck and connect the far right pin-hole to the pin at the bottom of the dump bed. You can lift the dump bed slightly to find this pin, it is below the row of five forward facing pins described in step 80. Now, when the axle between the wheels is rotated, it will raise and lower the bed!

84. Find a dark blue 11x3 curved panel and two black 2L pins. Place the panel horizontally long in front of you, concave up, with the row of five pin-holes at the back. Place the pins into the upward facing pin-holes of the panel, one at the left and one at the right near the end of the panel. Connect this to the dump bed by connecting the row of five pin-holes on the panel to the five pins at the front of the dump bed on the truck. It should mirror the other 11x3 curved panel.

85. Find a dark blue 11L thick lift-arm and a black 2L pin. If you are using stickers, this lift-arm will have a thin yellow stripe with the phrase "AP TRANSPORT" on it. Place this on the two upward pointing studs on the dump bed. The sticker should be on the left if you are using it. Center it horizontally so there is one stud hole to the left and right of the pins in the dump bed. Place the black pin into the far left hole of the lift-arm, pointing upwards.

Now we'll close off the front of the dump bed of the truck.

86. Find a dark blue 5L lift-arm and two 3L pins. place the lift-arm vertically long in front of you, and the holes pointing upwards. Place the pins, stop down, into the far front and back pin-holes.

87. Connect another dark blue 5L thick lift-arm in the same orientation, onto the two pins and push it down until it touches the first lift-arm.

88. Find a dark blue 7L thick lift-arm and place it centered vertically onto the pins from step 86. It should extend past the 5L lift-arms by 1L on either end. Return to the truck. Find the two upwards pointing studs at the left end of the dump bed. Keeping the same orientation, connect the previous piece and the assembly you just made to these two studs. It should be all the way at the left of the bed and extend all the way to the bottom of the bed.

89. Find a black 12 tooth gear and place this over the axle between the two wheel pins that houses the dump bed mechanism.

Almost there! Just some wheels and we'll be ready to go!

90. Make the four wheels by pressing the black rubber tires over the light gray wheel pieces. The wheels have a raised spoke pattern on one side, and a recessed pattern with bolts on the other. With the recessed pattern facing out, push one wheel over the wheel pin at each corner of the truck.

Now the truck is done!! Turn the gear on the top of the truck to turn the wheels and steer the truck. When you're ready to empty the truck bed, turn the gear between the driver's side wheels to raise and lower the bed!

Thank you so much for building this set!

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