

FIRST® LEGO® League Challenge BIOGLOW™ Building Instructions

This is booklet #7 and contains instructions for two missions: Mission 8: Tangled & Mission 9: Research Platform

Mission 9 begins at step 46.1

This build is 464 pieces, and 102 building steps.

This booklet contains two very challenging FIRST missions for visually impaired builders. A much more rewarding experience will be had if a sighted builder(s) work alongside the visually impaired builder(s)

Welcome to text-based instructions from Bricks 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 the piece
- Centered-horizontally: even amount of space left and right of the piece.
- Row: studs lined up horizontally (left to right/side to side).
- Column: studs lined up upright or vertically (top to bottom/back to front).
- Standing upright: the piece is perpendicular to the ground, like a wall.
- Lying flat: the piece is parallel to the ground, like a piece of toast which fell off the table.
- Anti-stud: the portion of a piece which accepts studs, like the bottom of a plate.
- Jumper plate: a 1x2 plate with a single stud on top, or a 1x3 plate with only two studs on top.

For builders with low vision, or a sighted building partner who may want to follow along with the printed visual instructions that come with each set. 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.

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.

Liftarms - A liftarm 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. Liftarms come in a variety of lengths, including a 1x1 liftarm which looks like a cylinder. Thick liftarms are as wide as a LEGO brick, and thin liftarms are half as wide as a LEGO brick, but not the same thickness as a LEGO plate! The holes in a liftarm arm may accept axles or pins. They also come in a variety of shapes, including tees, elts 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 liftarms, 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.

Sorting Instructions:

This LEGO set comes in the bags labeled 11-15 and some large pieces from bag 0. 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 across 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.

Mission 8: Tangled & Mission 9: Research Platform

Group A contains all of the black 2L pins from this bag. These pins have friction ridges.

Group B contains all of the blue 3L pins from this bag. These pins have friction ridges.

Group C contains all of the blue 2L axle/pin combos from this bag. These pins have friction ridges.

Bag 11 (6 groups of bricks)

Main Build: Tree

Group 1 contains the pieces for steps 1-7.

Group 2 contains the pieces for steps 8-9, not including the light gray 1L liftarm from step 9.

Group 3 contains the light gray 1L liftarm from step 9.

Group 4 contains the pieces for step 10.

Group 5 contains the pieces for steps 11-14, not including the flesh colored 3L liftarm from step 13.

Group 6 contains the flesh colored 3L liftarm from step 13.

Bag 12 (4 groups of bricks)

Group 7 contains the pieces for steps 15-26, not including the pink 1x1 round plate with a flower pattern from step 20. Include a brown 15L thick liftarm from bag 0.

Group 8 contains the pink 1x1 round plate with a flower pattern from step 20.

Group 9 contains the pieces for steps 27-36.

Group 10 contains the pieces for steps 37-45. Include a brown 15L thick liftarm from bag 0.

Bag 13 (2 groups of bricks)

Mission 9: Research Platform

Group 11 contains the pieces for steps 46-52. Include two light gray 15L thick liftarm from bag 0.

Group 12 contains the pieces for steps 53-56.

Bag 14 (5 groups of bricks)

Sub-Build: Researcher #1

Group 13 contains the pieces for steps 57-58.

Sub-Build: Researcher #2

Group 14 contains the pieces for steps 59-60.

Sub-Build: Researcher #3

Group 15 contains the pieces for steps 61-62.

Sub-Build: Research Platform

Group 16 contains the pieces for steps 63-71. Include two tan 2x14 plates and a tan 6x14 plate from bag 0.

Group 17 contains the pieces for steps 72-75.

Bag 15 (7 groups of bricks)

Group 18 contains the pieces for steps 76-79.

Group 19 contains the pieces for steps 80-81.

Group 20 contains the pieces for steps 82-83, including a green 90 degree tube from step 84.

Group 21 contains the pieces for steps 84-92.

Group 22 contains the pieces for steps 93-96, not including two orange 1L bars with two leaves on one side from steps 96 and 97.

Group 23 contains the orange pieces for steps 96, 97, 98, and 100.

Group 24 the pieces for steps 97-99 not including one 1x1 plate with a triangle on one side from step 98.

Group 25 contains the pieces for steps 100-102, not including one orange 1L bar with two leaves on one side from steps 100.

Building Instructions:

Groups A, B, C and 1. You will use the pins from groups A, B and C throughout the build.

Mission 8: Tangled

Main Build

1. We're going to start by building the bottom half of a tree trunk! Find a brown 11x3 curved panel. This piece is curved. It has one smooth side and one hollow side. It has one long side with five holes, two short sides with two holes each, and the side opposite the five holes has two pairs of three holes. Place this piece, upright with the smooth side at the back and the side with two pairs of three holes at the front on the left, in front of you.

2. Find a light gray 3L pin connector with four pins. This looks like a 3L liftarm where the middle pin hole is perpendicular to the end holes. There are also two pins extending parallel to the middle pin hole from each end. When viewed from the front, it looks kind of like a capital letter I. Push this, oriented like a capital letter I with the pins pointing left and right, from the right into the bottom two holes on the right side of the previous piece. Repeat symmetrically on the top side. There will be one free hole between these two pieces.

3. Push the holes on the right side of a brown 11x3 curved panel, upright with the smooth side at the back and the side with two pairs of three holes at the front on the right, from the right onto the pins on the right sides of the previous two pieces. It will be symmetrical to the first 11x3 curved panel.

4.1. Push a black 2L pin from group A, from the front, into the bottom hole on the right column of three studs on the front side of the previous piece. Skip the hole above this piece, and push in another black 2L pin. Repeat symmetrically on the left 11x3 curved panel. You'll place a total of four pieces in this step.

4.2. Push a green 3L thick liftarm, upright with the holes facing front and back, from the front onto each pair of pins from the previous step.

5.1.1. Next, we'll build a lever. Set the trunk aside for now. Place a red 3x5 L-shaped liftarm, lying flat with the short leg horizontal at the back pointing left and the long leg vertically at the right, in front of you.

5.1.2. Push a black 2L pin from group A, from the front, into the hole on the front side of the short liftarm of the previous piece.

5.1.3. Push a black 2L pin from group A, from the right, into the front hole on the right side of the long side of the 3x5 L-shaped liftarm.

5.2. Push a black 1L liftarm onto the free side of each of the previous two pieces.

5.3. Push a tan 3L pin, with the stop ring at the bottom, from the bottom into the corner hole of the L-shaped liftarm. Push it all the way in so it extends 1L above and below the L-shaped liftarm.

5.4. Push a red 1L pin with a stud, with the stud at the front, in to the front two holes on top of the long leg of the L-shaped liftarm.

5.5. Place a black minifigure phone handset, vertically, on the previous two pieces. This piece is about 3L and looks like a bar connected with two anti-studs on the ends.

5.6. Place the trunk, upright and horizontally with the curved side at the back and the 3L liftarms at the bottom, in front of you. Rotate the L-shaped liftarm so it's upright with the 3L liftarm at the top and the 5L liftarm on the right, pointing down. There should be a pin on the top right corner extending to the back. Push this pin into the middle hole on the top left column of three studs on the front side of the trunk.

6.1. Push a black 2L pin from group A, from the front, into the top hole on the top right column of three holes on the front side of the trunk.

6.2. Push a black 2L pin from group A, from the front into the second hole from the bottom on the second column of holes from the right on the front side of the trunk.

6.3. Push the back hole of a green 2L pin connector onto the front side of each of the previous two pieces.

7.1. Push a black 2L pin from group A, from the front, into the front hole of the top right piece from the previous step.

7.2. Push a black 2L pin from group A, from the front, into the middle hole of the right 3L liftarm on the front side of the trunk.

Group 2.

8.1.1. Next, we'll build the other half of the trunk. Set the first half aside. Place a brown 11x3 curved panel, upright with the smooth side at the back and the side with two pairs of three holes at the front on the right, in front of you.

8.1.2. Push a blue 3L pin from group B, with the stop ring at the back, from the front, into the middle hole of the bottom column of three holes on the front side of the previous piece. This column will be at the right of the piece.

8.2. Push a black 2L pin from group A, from the front, into the top and bottom holes of the top column of three holes on the front side of the 11x3 curved panel.

8.3.1. Push a green 3L thick liftarm, upright with the holes facing front and back, onto the front side of the previous two pieces.

8.3.2. Push a green 1L liftarm, from the front, onto the 3L pin below the previous piece. Push it all the way back so the pin extends 1L in front of it.

8.4. Push a blue 3L pin from group B, with the stop ring on the right, into the top, middle, and bottom holes on the left side of the 11x3 curved panel. These pins will extend 2L to the left.

Group 3 contains the light gray piece from the next step.

8.5.1. Push the light gray 1L liftarm from group 3, from the left, onto the top piece from the previous step. Push it all the way to the right.

8.5.2. Push a green 1L liftarm, from the left, onto the remaining two 3L pins on the left side of the trunk half. Push these all the way to the right.

8.6. Push a brown 11x3 curved panel, upright with the smooth side at the back and the side with two pairs of three holes at the front on the left, onto the three pins that extend to the left of the previous three pieces.

8.7.1. Push a black 2L pin from group A, from the front, into the bottom holes of each of the two columns of three holes on the front side of the previous piece. These holes are near the left side of the piece.

8.7.2. Push the top and bottom holes of a light brown 7L thick liftarm, upright with the holes facing front and back, onto the front side of the previous two pieces.

8.8. Place the first half of the trunk, upright and horizontally with the curved side at the back, and the two 3L liftarms on the front side near the bottom. Rotate the second half of the trunk so it's upright and horizontal with the curved side at the front and the 3L liftarm at the top on the back side. Push the two halves together.

9.1.1. Next, we'll build a couple of roots, one at a time. Set the trunk aside for now. Place a brown 11L thick liftarm, horizontally with the holes facing up and down, in front of you.

9.1.2. Push a black 2L pin from group A, from the top, into each of the right three holes on the previous piece.

9.2. Push the back hole of a light gray 2L thick liftarm, vertically with the holes facing up and down, onto the middle piece from the previous step.

9.3.1. Find a brown 7x3 bent liftarm. This is a 7L liftarm connected to a 3L liftarm at a 135 degree angle. The holes at each end are axle holes. Place this in front of you so it's horizontal with the holes facing up and down, with the 7L liftarm on the right and the 3L liftarm on the left pointing towards you.

9.3.2. Push a black 2L pin from group A, from the top, into the second hole from the right on the previous piece.

9.3.3. Push the pin from the previous step, from the bottom, into the front hole of the 2L liftarm. The right sides of the thick liftarm and the 11L liftarm should be even.

9.4.1. Next, we'll add some studs. Push a red 1L pin with a stud on one side, with the stud on top, into the second and third holes to the left of the 2L liftarm on the 7x3 bent liftarm.

9.4.2. Push a red 1L pin with a stud on one side, with the stud on top, into the fifth and sixth holes from the left on the 11L liftarm. There will be two free holes between the right piece and a 2L pin.

9.5. Place the front row of a green 3x3 L-shaped plate with a rounded corner, with the rounded corner at the front left, on the studs of the front two pins with studs. The left column will attach to the right stud on the 11L liftarm.

9.6.1. Place the right column of a green 2x2 curved slope tile, with the tall side on the right, on the left column of the previous piece. The front right stud will attach to the free stud on the 11L liftarm.

9.6.2. Place the back row of a green 2x2 curved slope tile, with the tall side at the back, on the front row of the 3x3 L-shaped plate with a rounded corner. The front row will overhang.

9.7.1. Place a brown 1x1x2 tall brick with two studs on one side, horizontally with the side studs on top and the normal stud on the right, in front of you.

9.7.2. Place a brown 1x1 slope tile, with the thick side at the bottom, on the right facing stud of the previous piece.

9.7.3. Repeat steps 9.7.1-9.7.2.

9.7.4. Place one of the assemblies we just made under the front row of the front 2x2 curved slope tile from step 9.6.2.

9.7.4. Rotate the other small assembly so it's horizontal with the slope tile on the left and the side studs on top. Place it under the back row of the back 2x2 curved slope tile from step 9.6.1.

9.8. Repeat steps 9.1.1 - 9.7.4.

9.8.1. Place the trunk, upright with the lever on the left near the top, in front of you. Rotate one of the roots so it's horizontal with the curved slope tiles at the bottom, and the bent liftarm at the front. There will be two pins facing down at the back left of the root. Find the gap that's centered left and right on the front of the trunk at the top. Push the two pins into the holes that are on either side of this gap. The 1x2 liftarm on the bottom of the root should fit into the gap.

9.8.2. We'll do the opposite on the back side, except this root will point to the left. Rotate the remaining root so it's horizontal with the curved slope tiles at the bottom, and the bent liftarm at the back. There will be two pins facing down at the front right of the root. Push the pins into the holes on either side of the gap on the back side of the trunk.

Group 4.

10.1.1. Now, we'll build a small root. Set the trunk aside for now. Place a light brown 7L thick liftarm, horizontally with the holes facing up and down, in front of you.

10.1.2. Push a black 2L pin from group A, from the top, into the rightmost hole of the previous piece.

10.2. Push the back hole of a red 2L thick liftarm, vertically, on the previous piece so the front hole overhangs.

10.3.1. Place a light brown 7L thick liftarm, horizontally with the holes facing up and down, in front of you.

10.3.2. Push a black 2L pin from group A, from the top, into the third hole from the right on the previous piece.

10.3.3. Push the previous piece into the bottom of the front hole of the red 2L liftarm on the small root. The right side of the second liftarm will extend 2L to the right of the first.

10.4. Push a black 2L pin from group A, from the top, into the hole to the left of the 2L liftarm on the front 7L liftarm. Place another into the rightmost hole on the front 7L liftarm.

10.5. Place a red 1L pin with a stud on one side, with the stud on top, into the left two holes on the front 7L liftarm. Place two more behind the first pair.

10.6. Place the left column of a green 3x3 L-shaped plate with a rounded corner, with the rounded corner at the front left, on the right two pieces from the previous step. The front row will overhang.

10.7. Place the back row of side studs of a dark brown 1x2x2 tall brick with four studs on one side, laying flat with the side studs on top and the studs at the front, under the front row of the previous piece.

10.8.1. Place the front row of a green 2x2 curved slope tile, with the tall side at the back, on the front row of side studs on top of the previous piece.

10.8.2. Place the right column of a green 2x2 curved slope tile, with the tall side on the right, on the left column of the 3x3 L-shaped plate with a rounded corner.

10.9. Place a green 1x2 slope tile, horizontally with the tall side on the bottom, on the front two studs on the front side of the small root.

10.10. Now we'll add the small root to the tree. Place the trunk, with the roots horizontally on top, and the lever on the left, in front of you. Rotate the small root so it's upside down and vertical with the previous piece vertically on the left. Place it to the left of the front root, and in front of the back root.

Group 5.

11.1.1. Now we'll make another small root. Set the tree aside for now. Place a brown 11L thick liftarm, horizontally with the holes facing up and down, in front of you.

11.1.2. Push a black 2L pin from group A, from the top, into the third hole from the right on the previous piece.

11.2. Push the back hole of a green 3L thick liftarm, vertically with the holes facing up and down, from the top onto the previous piece so it overhangs 2L to the front.

11.3.1. Place a light brown 7L thick liftarm, horizontally, in front of you.

11.3.2. Push a black 2L pin from group A, from the top, into the third hole from the right on the previous piece.

11.3.3. Push the previous piece into the bottom of the second hole from the back of the green 3L liftarm on the small root. The right side of the 7L liftarm will be even with the right side of the 11L liftarm.

11.4. Push a black 2L pin from group A, from the top, into the hole to the left of the 3L liftarm on the 7L liftarm. Place another into the rightmost hole on the 7L liftarm.

11.5.1. Find a light green 3L axle and pin connector with two perpendicular pin holes. This looks like a 3L liftarm, except that the hole on one end is an axle hole that is perpendicular to the two pin holes. Place this, horizontally with the axle hole at the right facing front and back, in front of you.

11.5.2. Push a black 2L pin from group A, from the top, into the right pin hole on top of the previous piece.

11.5.3. Push the previous piece, from the bottom, into the front hole of the 3L thick liftarm on top of the small root.

11.6.1. Push a red 1L pin with a stud, with the stud on top, into the left hole of the 3L axle and pin connector with perpendicular pin holes from step 11.5.1.

11.6.2. Place a red 1L pin with a stud on one side, with the stud on top, into the left two holes on the front 7L liftarm. Place two more behind the first pair.

11.7. Place the left column of a green 3x3 L-shaped plate with a rounded corner, with the rounded corner at the front left, on the right two pieces from the previous step. The front right stud will attach to another stud.

11.8. Place the right column of a green 2x2 curved slope tile, with the tall side on the right, on the left column of the previous piece.

11.9. Place the tree, with the roots on the top and the lever on the left, in front of you. The roots should extend to the left and right and the first small root should extend to the front. Rotate the second small root so it's upside down with the 11L liftarm vertically on the left. Place it on top of the tree, behind the front root and to the right of the back root.

12. So far, we've been building the trunk upside down. Flip the tree over so the roots are at the bottom and so the lever is on the left. There will be gaps on the top of the tree at the front and back where the two 11x3 curve panels meet. Push a blue 3L pin from group B, with the stop ring at the bottom, from the top into the holes on each side of these gaps. You'll place a total of four pieces in this step.

Group 6 contains the flesh colored piece from the next step.

13.1. Push the nougat colored 3L thick liftarm from group 7, horizontally with the holes facing up and down, onto the front pair of pins from the previous step. Push it all the way down so the pins extend 1L above it.

13.2. Push a green 3L thick liftarm, horizontally with the holes facing up and down, onto the back pair of 3L pins on top of the tree. Push it all the way down so the pins extend 1L above it.

14.1. Next, we'll make some small pin assemblies. Place a brown 1L liftarm, with the holes facing up and down, in front of you.

14.2. Push a dark gray 3L axle/pin combo with a 2L pin on one side, with the axle on top, from the top into the previous piece. Push it all the way down so it extends 1L above and below the liftarm.

14.3. Repeat steps 14.1-14.2 three times.

14.4. There will be two holes facing up on both the left and right columns on top of the tree. Push the pin side of the small assemblies, with the axles on top, into each of these four holes.

Bag 12.

Group 7.

15. Now, we'll extend the trunk of the tree. Set the bottom half of the trunk aside for now. Place a brown 11x3 curved panel, upright with the smooth side at the back and the side with two pairs of three holes at the front on the left, in front of you.

16. Find a light gray 3L pin connector with four pins. Remember that this looks like a 3L liftarm where the middle pin hole is perpendicular to the end holes. There are also two pins extending parallel to the middle pin hole from each end. When viewed from the front, it looks kind of like a capital letter I. Push this, oriented like a capital letter I with the pins pointing left and right, from the right into the bottom two holes on the right side of the previous piece. Repeat symmetrically on the top side. There will be one free hole between these two pieces.

17. Push the holes on the right side of a brown 11x3 curved panel, upright with the smooth side at the back and the side with two pairs of three holes at the front on the right, from the right onto the pins on the right sides of the previous two pieces. It will be symmetrical to the first 11x3 curved panel.

18.1. Push a black 2L pin from group A, from the front, into the center hole on the bottom column of three holes on the front side of the left 11x3 curved panel.

18.2. Push a green 2L pin connector onto the front side of the previous piece.

18.3. Push a black 2L pin from group A, from the front, into the front hole of the previous piece.

19. Find the rightmost column of holes on the front side of the left 11x3 curved panel. There are four holes on this column and there are two 3L pin connectors with four pins to the right of it. Push a red 1L pin with a stud on one side, with the stud at the front, into the bottom hole of this column. Repeat symmetrically on the right 11x3 curved panel.

Group 8 contains the pink piece from the next step.

20.1. Place a green 1x1 round plate with a flower petal pattern onto the stud of the right piece from the previous step.

20.2. Place the pink 1x1 round plate with a flower petal pattern from group 8 onto the stud to the left of the previous piece.

21.1. Push a tan 3L pin, with the stop ring at the back, from the front into the hole above the previous piece. This pin does not have friction ridges and will spin freely.

21.2. Push a black 2L pin from group A, from the front into each of the two holes above the previous piece.

21.3. Push a black 2L pin from group A, from the front, into the hole above the right 1x1 round plate with a flower petal pattern from step 20.2.

21.4. Push a tan 3L pin, with the stop ring at the back, from the front into the hole above the previous piece. This pin does not have friction ridges and will spin freely.

21.2. Push a black 2L pin from group A, from the front into the hole above the previous piece. There will now be two black 2L pins and one tan 3L pin above each of the two 1x1 flower plates.

22.1. Push the bottom hole of a brown 15L thick liftarm, upright with the holes facing front and back, onto the bottom pin above the left 1x1 flower plate.

22.2. Push the bottom hole of a brown 11L thick liftarm, upright with the holes facing front and back, onto the bottom pin above the right 1x1 flower plate.

23.1.1. Push a black 2L pin from group A, from the front, into the top and bottom holes of the top column of three holes on the front side of the left 11x3 curved panel.

23.1.2. Push a nougat colored 3L thick liftarm, upright with the holes facing front and back, onto the front side of the previous two pieces.

23.2. Push a black 2L pin from group A, from the front, into the center hole of the previous piece.

24.1. Next, we'll add a lever to this part of the trunk. Find a red 7L thick liftarm. Rotate it so it's horizontal with the holes facing front and back, and push the second hole from the right onto the pin that extends from the bottom hole of the upright 15L liftarm that's near the center of the trunk. The left side of the liftarm should fall when you let go of it and rest on a 2L pin connector.

24.2. Push a red 1L pin with a stud on one side, with the stud at the front, into the rightmost hole of the previous piece.

25.1.1. Now we'll add another branch. Place a brown 7x3 bent liftarm, vertically with the 7L liftarm at the front and the 3L liftarm on the back pointing to the right, in front of you. The holes will be facing up and down.

25.1.2. Push a red 1L pin with a stud on one side, with the stud on top, into the second hole from the front on the previous piece.

25.2. Push a red 2L axle, from the top, into the back axle hole of the bent liftarm. Only push it in until it extends 1L above the bent liftarm.

25.3.1. Find a black axle connector with a 2L axle on one side. This looks like a 2L axle which has an axle hole at one end. Slide the axle hole of this piece, with the axle pointing to the back right and the axle holes facing up and down, from the top onto the previous piece.

25.3.2. Push a yellow thin bushing onto the right side of the previous piece. Push it all the way to the left.

25.4.1. Find a dark brown axle and pin connector #3. This piece has two 1L axle connectors which form an angle almost 180 degrees, and a perpendicular pin hole between them. Push the left axle hole of this piece, horizontally with the pin hole facing up and down and the right axle hole bending towards you, from the right onto the axle to the right of the previous piece. Push it all the way to the left.

25.4.2. Push a yellow 3L axle, from the right, into the right axle hole of the previous piece.

25.5. Now we'll add this to the tree. Find the upright 11L liftarm that extends above the trunk. There should be a pin near the bottom of this liftarm. Keeping the branch assembly upright, with the axle pointing up and to the right, push the third hole from the bottom on the bent liftarm onto the pin we just found. This pin should go above a 1L pin with a stud on the bent liftarm.

26.1.1. Push a black 2L pin from group A, from the front, into the bottom hole on the top column of three holes on the front side of the right 11x3 curved panel. Place another into the top hole of the bottom column of three holes.

26.1.2. Push a brown 5L thick liftarm, vertically with the holes facing front and back, onto the previous two pieces.

26.2. Push a black 2L pin from group A, into the bottom two free holes of the previous piece. There will be one free hole above the top pin.

Group 9.

27. Now we'll build the other half of the upper trunk. Set the first half aside for now. Place a brown 11x3 curved panel, upright with the smooth side at the front and the side with two pairs of three holes at the back on the right, in front of you. Note that we're doing this side opposite of how we've done the previous trunk halves!

28. Push a blue 3L pin, with the stop ring on the right, into the top, middle, and bottom holes on the left side of the previous piece. These pins will extend 2L to the left.

29. Push a green 1L liftarm, from the left, onto the left side of each of the previous three pieces. Push these all the way to the right.

30.1. Push the holes on the right side of a brown 11x3 curved panel, upright with the smooth side at the front and the side with two pairs of three holes at the back on the left, from the right onto the three pins on the left of the trunk half.

30.2. Find the right hole on top of the previous piece. Push a red 1L pin with a stud on one side, with the stud on top, from the top into this hole.

31. The front side of the trunk half has two upright columns of four holes near the center. There is a gap between these columns. Push a red 1L pin with a stud on one side, with the stud at the front, into the bottom three holes of each of these columns.

32.1. Rotate the trunk half 180 degrees so the curved sides are at the back. Find the bottom left column of three holes on the front side of the trunk. Push a black 2L pin from group A, from the front, into the top and bottom holes in this column of holes.

32.2. Push a black 2L pin from group A, from the front, into the top and bottom holes in the top right column of three holes.

33.1. Find a brown 3L thick liftarm with a perpendicular bushing on one side. Push this piece, upright with the bushing on the right, onto the previous two pieces.

33.2. Push the bottom hole of a brown 5L thick liftarm, upright with the holes facing front and back, onto the bottom left hole on the front side of the trunk half.

34.1.1. Next, we'll build a small branch. Place a black axle connector with a 2L axle on one side, with the axle pointing to the left and the axle holes facing front and back, in front of you.

34.1.2. Push a yellow thin bushing, from the left, onto the axle of the previous piece. Push it all the way to the right.

34.2.1. Find a dark green axle and pin connector #5. This piece has two 1L axle connectors which form an angle slightly greater than 90 degrees, and a perpendicular pin hole between them. Place the right axle hole of this piece, with one axle connector facing right and the other facing to the front left, on the left side of the axle.

34.2.2. Push a red 2L axle, from the left, into the left axle hole of the previous piece.

34.3. Push the bar of a green 1L bar with three short stems on one side, with the stems at the back, into the back of the axle hole that's at the right end of the branch.

34.4. Push the hollow anti-stud of a transparent yellow 1x1 flower onto one of the three stems of the previous piece.

34.5. Find the bushing that sticks out from the right side of the trunk half. Rotate the branch so the leftmost axle is at the bottom, and so the tallest side of the branch is on the right. Push the axle into the top hole of the bushing.

35. Place the first half of the upper trunk, horizontally with the curved side at the back and the 7L liftarm lever extending to the left, in front of you. The tallest liftarm sticking up from this trunk should be to the left of the shorter liftarm. Rotate the second half of the trunk 180 degrees so the branch we just made points up and to the left. Push the two halves together.

36.1. There will be two holes facing up on both the left and right columns on top of the trunk. Push a black 2L pin from group A, from the top, into the two holes on the left column.

36.2. Push a green 1L liftarm, from the top, into the top side of each of the previous two pieces.

Group 10.

37.1. Find the stud that's on top of the trunk and to the right of the front piece from the previous step. Find a dark green flower petal piece. This looks like a dish with pointed corners that stick up. Place this on the stud we just found.

37.2. Place a green frog on the previous piece.

38.1. Find the tallest liftarm sticking up from the trunk. Push a black 2L pin from group A, from the front, into each of the top two holes in this liftarm.

38.2. Push the two holes on the short leg of a lime green 2x4 L-shaped liftarm, horizontally with the 2L liftarm upright and pointing down on the left and the 4L liftarm horizontally on top pointing to the right, onto the front side of the previous two pieces.

39. Now we'll attach the two halves of the trunk! Place the first half of the trunk, with the roots at the bottom and the lever on the left, in front of you. Rotate the second half of the trunk 180 degrees so the lever is on the right. Push the second half of the trunk, from the top, onto the first half.

40.1.1. Next, we'll build another branch. Set the tree aside for now. Place a brown 7x3 bent liftarm, with the 3L liftarm vertically at the front and the 7L liftarm at the back pointing to the left, in front of you. The holes will be facing up and down.

40.1.2. Push the axle side of a blue 2L axle/pin combo from group C, with the pin side on top, into the front axle hole of the previous piece.

40.1.3. Push a black 2L pin from group A, from the top, into the corner hole of the bent liftarm. There will be one free hole between these pieces.

40.2.1. Skip one hole to the left of the previous piece and push a red 1L pin with a stud on one side, with the stud on top, into the hole.

40.2.2. Push the axle side of a dark gray 3L axle/pin combo with a 2L pin side and a 1L axle side, with the pin side on top, into the leftmost axle hole of the bent liftarm.

40.3.1. Skip one hole to the right of the previous piece and push the pin side of a blue 2L axle/pin combo from group C, with the axle side on top, into the hole.

40.3.2. Push the rightmost hole of a brown 7x3 bent liftarm, with the 7L liftarm horizontally pointing to the left and the 3L liftarm on the right pointing forward, onto the pin side of the previous piece. The dark gray 3L axle/pin combo will go through the corner hole of this piece and extend 1L above the bent liftarm.

40.4. Place the tree in front of you, with the roots at the bottom and the lower lever on the left. Find the tallest liftarm extending from the top of the tree. Rotate the branch we just made so the short liftarm with two pins on one side is upright on the left with the pins at the back. The long side of the branch should form an arch to the right. Push the top pin on the back side of the short liftarm into the top free hole on the upright liftarm on the tree. The right side of the branch should overhang quite a ways to the right of the tree, and there should be a pin at the back of the branch at its highest point.

41.1. Next, we'll make some small pin assemblies. Place a green 1L liftarm, with the holes facing up and down, in front of you.

41.2. Push a green 3L pin from group B, with the stop ring on top, from the top into the previous piece. Push it all the way down so it extends 1L above and below the liftarm.

41.3. Repeat steps 41.1-41.2 three times.

41.4. There is a gap that splits the left and right halves of the tree. This gap has four pairs of holes in it. Rotate one of the pin assemblies so there is a pin at the front and back, and push the back pin into the bottom hole in the gap. Rotate the other three assemblies and push them into the top, third from the top, and fourth from the top holes. The last one should be above a horizontal 3L liftarm.

42.1. Push the top hole of a brown 15L thick liftarm, upright with the holes facing front and back, onto the second pin from the bottom that we placed in the previous step. The bottom of this liftarm should be even with the bottom of the tree.

43.1.1. Next, we'll make a small assembly. Place a yellow 3x3 T-shaped liftarm, with the arms of the T horizontally at the back and the stem vertically at the front, in front of you. The holes should be facing up and down.

43.1.2. Push a black 2L pin from group A, from the top, into the center hole on the back row of the previous piece. Push another into the front hole.

43.2. Push the back hole of a brown 11L thick liftarm, vertically with the holes facing up and down, onto the back piece from the previous step. The front piece will go into the third hole from the back.

43.3. Rotate this assembly so it's upright with the T-shaped liftarm at the top on the back side. Push it, from the front, onto the pins on the front side of the tree so it's above the 15L liftarm from step 42.1.

44.1.1. Next, we'll build another branch. Set the tree aside for now. Place a brown 7x3 bent liftarm, with the 7L liftarm horizontally pointing to the left and the 3L liftarm on the right pointing towards the front, in front of you. The holes will be facing up and down.

44.1.2. Push the axle side of a blue 2L axle/pin combo from group C, with the pin side on top, into the rightmost axle hole of the previous piece.

44.2.1. Push a black 2L pin from group A, from the top, into the corner hole of the bent liftarm. There will be one free hole between these pieces.

44.2.2. Push the axle side of a dark gray 3L axle/pin combo with a 2L pin side and a 1L axle side, with the pin side on top, into the leftmost axle hole of the bent liftarm.

44.3.1. Skip one hole to the right of the previous piece and push the pin side of a blue 2L axle/pin combo from group C, with the axle side on top, into the hole.

44.3.2. Push the rightmost hole of a brown 7x3 bent liftarm, with the 3L liftarm horizontally pointing to the right and the 7L liftarm on the left pointing forward onto the axle side of the previous piece. The dark gray 3L axle/pin combo will go through the corner hole of this piece and extend 1L above the bent liftarm.

44.4. Place the tree, with the roots at the bottom and the bottom lever on the right, in front of you. Find the upright liftarm that's to the right of the tallest liftarm. Rotate the branch we just made so the short liftarm with two pins on one side is upright on the left with the pins on the left. The long side of the branch should form an arch to the right. Push the top pin on the back side of the short liftarm into the top hole on the upright liftarm on the tree.

45. The front side of the tree also has a gap between the left and right halves, but there are no holes in the gap. Instead, there are upright columns of holes on either side. Push a red 1L pin with a stud on one side, with the stud at the front, from the front into the fourth hole from the bottom on each side of the gap.

Bag 13.

Mission 9: Research Platform

Group 11.

Sub-Build: Platform

46.1. Next, we'll build a platform assembly. Set the tree aside for now. Place a light gray 15L thick liftarm, horizontally with the holes facing front and back, in front of you.

46.2. Push a black 2L pin from group A, from the front, into the second and fourth holes from the left on the previous piece.

46.3. Push the short side of a blue 3L pin from group B, with the stop ring at the front, from the back into the rightmost hole on the 15L liftarm. It will extend 2L behind the liftarm.

47. Push a tan 1L liftarm, from the back, onto the back side of the previous piece. Push it all the way forward so the previous piece extends 1L behind it.

48.1.1. Next, we'll make a small handle. Place a red 3x5 L-shaped liftarm, with the 5L liftarm horizontally on the bottom pointing to the right and the 3L liftarm upright on the left, in front of you.

48.1.2. Push the back side of a blue 3L pin from group B, with the stop ring at the back, from the front into the top left and bottom left holes on the front side of the previous piece. These pieces will extend 2L to the front.

48.2. Push a dark gray 3L thick liftarm, upright with the holes facing front and back, on the previous two pieces. Push it all the way back so the pins extend 1L in front of it.

48.3. Push a red 5L thick liftarm, centered top and bottom, on the front side of the pins.

48.4. Push the right two holes on the back side of the handle assembly, from the front, onto the left two pins on the front side of the 15L liftarm.

49.1. Find a dark gray 3x7 panel. This piece has three pin holes on each short end, three pin holes on each long side, and four pin holes on the top and bottom. One side is flat, and one side has a gap between the two long rows of pin holes. Place this piece, vertically with the flat side on the top, in front of you.

49.2. Push a black 2L pin from group A, from the front, into the left and right holes on the front side of the previous piece. Repeat symmetrically on the back side.

49.3. Push the back two pins from the previous step into the 15L liftarm to the right of the handle assembly. There should be seven free holes between this piece and the 3L pin on the right end of the liftarm.

50.1.1. Now we'll build a mirrored assembly. Set the first half of the platform aside. Place a red 3x5 L-shaped liftarm, with the 5L liftarm horizontally on the bottom pointing to the right and the 3L liftarm upright on the left, in front of you.

50.1.2. Push a blue 3L pin from group B, with the stop ring at the front, from the back into the top left and bottom left holes on the front side of the previous piece. These pieces will extend 2L to the back.

50.2. Push a dark gray 3L thick liftarm, upright with the holes facing front and back, on the previous two pieces. Push it all the way forward so the pins extend 1L behind it.

50.3. Push a red 5L thick liftarm, centered top and bottom, on the back side of the pins.

50.4. Push a black 2L pin from group A, from the front, into the right two holes on the front side of the L-shaped liftarm.

50.5.1. Push the second hole from the left on a light gray 15L thick liftarm, horizontally with the holes facing front and back, onto the left piece from the previous step.

50.5.2. Push a blue 3L pin from group B, with the stop ring at the back, from the front into the rightmost hole on the previous piece.

50.6. Push a tan 1L liftarm, from the front, onto the previous piece. Push it all the way back so the previous piece extends 1L in front of it.

50.7. Place the first half of the platform, horizontally with the 3x7 panel at the front, in front of you. Push the holes on the front side of the 3x7 panel, from the back, into the back side of the second 15L liftarm and to the right of an L-shaped liftarm. The two halves should be symmetrical.

51.1. Now we'll reinforce the connections between the two halves. Push a black 2L pin from group A, from the top, into the rightmost hole on top of each of the two 3x5 L-shaped liftarms.

51.2. Push the front and back holes of a yellow 7L thick liftarm, vertically with the holes facing top and bottom, from the top onto the previous two pieces.

52.1. Push a blue 3L pin from group B, with the stop ring at the top, from the top, into each of the right two holes on the top of the 3x7 panel. Push them all the way down so they extend 1L above and below the panel.

52.2. Push a tan 1L liftarm, from the top, onto the top side of each of the previous two pieces.

Group 12.

53.1.1. So far, we've been working on the base of the platform. Set the base aside for now. Find a light gray 5x7 hollow frame. This looks like two 7L liftarms connected by two 5L liftarms, forming an open rectangle. Place this piece, horizontally with the 7L liftarms upright on the left and right, in front of you.

53.1.2. Push a blue 3L pin from group B, with the stop ring on the left, from the right into the bottom two holes on the right side of the previous piece.

53.2. Push a dark gray 3L thick liftarm, upright with the holes facing left and right, on the previous two pieces. Push it all the way left so the pins extend 1L to the right of it.

53.3. Push the bottom two holes on the left side of a light gray 5x7 hollow frame, horizontally with the 7L liftarms upright on the left and right, from the right onto the two pins on the right side of the assembly.

53.4. Push a black 2L pin from group A, from the top, into the left and right holes on the top side of the previous piece. Repeat symmetrically on the left 5x7 hollow frame.

53.5. Push a black 2L pin from group A, from the right into the center hole on the left, upright, 7L liftarm on the left hollow frame. This pin will extend inside of the hollow frame. Repeat symmetrically on the right 5x7 hollow frame.

53.6. Push a black 2L pin from group A, from the left into the top hole on the left, upright, 7L liftarm on the left hollow frame. This pin will extend to the left of the hollow frame. Repeat symmetrically on the right 5x7 hollow frame.

53.7. Place the 5L leg of a 3x7 L-shaped liftarm, with the 5L leg horizontally at the back pointing left and the 3L leg vertically pointing forwards, centered horizontally on the two pins on the left hollow frame. Repeat symmetrically on the right hollow frame.

53.8. Place the base of the platform, horizontally with the handle on the left and the pin on the 3x7 panel at the top, in front of you. Rotate the assembly with hollow frames so it's vertical with the L-shaped liftarms on top with the 3L legs pointing left. Push the holes on the bottom of this assembly, centered vertically, onto the two pins on top of the panel.

54.1.1. Next, we'll build some extensions to the base. Set the base aside for now. Place a light gray 11L thick liftarm, horizontally with the holes facing front and back, in front of you.

54.1.2. Push a black 2L pin from group A, from the back, into the leftmost two holes on the back side of the previous piece.

54.2. Find a light gray 3L axle and pin connector with two perpendicular pin holes. This looks like a 3L liftarm, except that the hole on one end is an axle hole that is perpendicular to the two pin holes. Push the two pin holes of this piece, horizontally with the pin holes facing front and back and the axle hole on the left facing up and down, from the back onto the back side of the previous two pieces.

54.3. Push a red 1L pin with a stud on one side, with the stud at the front, from the front into the left two free holes on the 11L liftarm. These are the third and fourth holes from the left on the 11L liftarm, as the first two already have pins in them.

54.4.1. Push a black 2L pin from group A, from the back, into the hole to the right of the right piece from the previous step.

54.4.2. Push the pin side of a dark gray 3L axle/pin combo with a 2L pin side and a 1L axle side, with the axle side at the front, into the rightmost hole of the 11L liftarm. Push it all the way to the back so it extends 1L in front of and behind the liftarm.

54.5. Repeat steps 54.1-54.4.2.

54.6. Place the base, horizontally with the hollow frames on top and the handle on the left, in front of you. Push the rightmost pin on the back side of one extension into the leftmost hole of the 15L liftarm on the front side of the base. The 3L liftarm on this piece should be at the back on the left, and the entire liftarm should extend to the left of the base. Repeat symmetrically with the other extension on the back side of the base.

55. Now we'll attach these extensions so they can't rotate. Find the pin that extends inside the front upright 5x7 hollow frame. Rotate the left extension so it points up and to the left. Push the rightmost hole of a black 9L thick liftarm, horizontally with the holes facing front and back, from the back, onto the pin inside the hollow frame. Push the leftmost hole onto the pin on the back side of the front extension. Repeat symmetrically on the back side of the base.

56.1. Find the two free pins on the front side of the base. One is all the way at the right, the other is near the top of the front hollow frame. Push the front and back holes of a light gray 1x12 brick with pin holes, horizontally with the studs on top, onto these two pins. Repeat symmetrically on the back side. This piece will be at an angle, with the left side higher than the right side.

56.2. Place a light gray 1x2 jumper plate, horizontally, on the right two studs of each of the previous two pieces. Place four more to the left of each of the first two. You'll place ten pieces in this step. The left two studs of the 1x12 brick with holes will be free.

Bag 14.

Group 13.

Minifigure:

57. Let's assemble a minifigure! Set the platform aside. Assemble the minifigure by placing the torso on the legs, the head on the torso, and the hat on the head. This minifigure wears dark tan pants, a green jacket with pockets, and a dark green short brimmed hat. She has pink lipstick and clear glasses and she is smiling.

58. Place a dark brown telescope in the minifigure's right hand and a black camera in her left hand.

Group 14.

Minifigure:

59. Let's assemble another minifigure! Set the first one aside. Assemble the minifigure by placing the torso on the legs, the head on the torso, and the hood on the head. This minifigure wears dark brown pants, a fleece lined brown jacket, and a brown hood. This minifigure wears burgundy lipstick and glasses. She has lines around her face.

60.1. Place a light blue pair of binoculars in her left hand.

60.2. Assemble a book by clipping the spine of the book into the base of the book.

60.2. Place a tan 1x2 tile on the studs inside the book. The minifigure can hold the book by clipping the rounded edge into her hand.

Group 15.

Minifigure:

61. Let's assemble a third minifigure! Set the second one aside. Assemble the minifigure by placing the torso on the legs, the head on the torso, and the hat on the head. This minifigure wears dark green pants, a dark green button up, and a brown wide-brimmed hat. He has a serious expression, a grey mustache, and he wears glasses.

62. Clip a black magnifying glass into the minifigure's right hand.

Group 16.

63.1. Now we'll add some better handles to the platform. Set all the minifigures aside. Place the platform base, horizontally with the angled 11L liftarms on the left. Push the back axle hole of a red 3L axle connector, from the front, onto the left axle on the front side of the base, near the bottom. Repeat symmetrically on the back side.

63.1.2. Push a red 2L axle, from the front, into the front side of the front piece from the previous step. Repeat symmetrically on the back side.

63.2. Push the axle hole of a red ball with an axle hole, from the front, onto the front side of the front piece from the previous step. Repeat symmetrically on the back side.

64.1. Next, we'll make the floor of the platform. Set the platform aside for now. Place a tan 2x14 plate, horizontally, in front of you.

64.2. Place a dark tan 1x10 plate, vertically, on the rightmost column of the previous piece so the back sides are even. The front side will overhang by eight studs.

65.1. Place the rightmost column of a tan 6x14 plate, horizontally, under the previous piece and in front of the 2x14 plate.

65.2. Place a tan 2x14 plate, horizontally, in front of the previous piece.

66. Place a dark tan 1x10 plate, vertically, on the leftmost column of the floor assembly.

67.1. Place a tan 1x4 low fence panel, vertically with the fence on the left, on the previous piece so there is one free stud in front of it. Place another behind the first. Repeat these two pieces symmetrically on the right side of the floor. You'll place a total of four pieces in this step.

67.2. Place a tan 1x4 low fence panel, horizontally with the fence at the front, on the front row of the floor so there are three free studs to the left of it. Place another to the right of the first. Repeat these two pieces symmetrically on the back side of the floor. You'll place a total of four pieces in this step.

68.1.1. Next, we'll build a table! Place a brown 2x2 round brick in front of you.

68.1.2. Place a dark brown 4x4 round plate, centered vertically and horizontally, on the previous piece.

68.2.1. Place a red 1x1 round plate with three leaves on one side, with the leaves pointing to the left, on the leftmost stud on the back row of the previous piece.

68.2.2. Push the short bar of a yellow horn with a short bar, with the horn on top, from the top into the hollow stud of the previous piece.

68.3. Place a tan 1x2 tile, horizontally, on the second row from the back of the 4x4 round plate so the right sides are even.

68.4.1. We'll add a mushroom to the table now. Place a white 1x1 cone on the right stud on the front row of the 4x4 round plate.

68.4.2. Place a transparent orange 2x2 dish on the previous piece.

68.5. Place the table, centered horizontally, on the floor so there are two free rows between it and the back row of fences.

69.1. Place a pale blue butterfly, with the wings on the left and right, on the third stud from the front on the third column from the left on the floor.

69.2. Place an orange frog on the second stud from the front on the third column from the right on the floor.

70. Place the base, horizontally with the handles on the left, in front of you. Find the two angled bricks with jumper plates that are on the right side. Rotate the floor 90 degrees counter clockwise so it's vertical with the table nearest the left side. Place the floor on the two rows of jumper plates so it's centered vertically and so the right side is even with the sides of the jumper plates.

71.1.1. Next, we'll add some details to the platform assembly. Place a tan 1x2 plate with rounded ends, horizontally, in front of you.

71.1.2. Place a lime green 1x1 half cylinder, with the flat sides at the front and back, on the right stud of the previous piece.

71.2. Push the short bar on the bottom of a lime green pair of cherries, with the cherries on the left, into the hollow stud to the left of the previous piece.

71.3. Rotate this assembly so the cherries are at the top and the anti-studs are at the back and place it on the two studs on the front side of the front angled 11L lifarm on the platform.

Group 17.

72.1. Rotate the platform 180 degrees so the floor is on the left and the handles are on the right. Place a light gray 1x2 jumper plate, upright, on the two studs on the front side of the front angled 11L lifarm.

72.2. Place a pale yellow butterfly, with the wings on the top and bottom, on the previous piece.

73. Find the 3L lifarm with a perpendicular axle hole that's on the end of each of the two angled 11L lifarms. Push the axle side of a blue 2L axle/pin combo from group C, with the pin side on the right, from the right into the top axle hole of each of these two pieces.

74. Now we'll attach the platform to the tree. Place the tree, with the roots at the bottom and the lower lever on the right, in front of you. Rotate the platform so the floor is at the back and the two angled 11L lifarms are on the left and right.

75.1.1. Place a black 9L thick lifarm, horizontally with the holes facing up and down, in front of you.

75.1.2. Push the pin side of a blue 2L axle/pin combo from group C, with the axle side on top, into the fourth hole from the left on the previous piece. Skip one hole and place another. There will be three free holes to the right of the second axle/pin combo.

75.2. Push the axle hole of a light gray ball with an axle hole onto the free side of each of the previous two pieces.

75.3. Rotate the angled 11L lifarms down towards you so they are on either side of the trunk. Push the left and right holes of the 9L lifarm, from the bottom with the balls on top, onto each of the pins that are pointing down at the ends of the two 11L lifarms.

Bag 15.

Group 18.

76.1. Rotate the tree 90 degrees counterclockwise so the floor on the platform is on the left. Find the root that is pointing straight towards you at the front of the tree. To the left of this root is a 1x1 slope tile, and to the left of the slope tile is an axle hole. Push the axle side of a tan 2L axle/pin combo, with the pin at the front, from the front, into this hole.

76.2. Push the rightmost hole of a lime green 5L thick lifarm, horizontally with the holes facing front and back, onto the pin side of the previous piece. The pin has no friction ridges so this piece will spin freely.

77.1. Next, we'll build a winding vine that will wrap around the tree. Set the tree aside for now. Place a tan 2L axle/pin combo, horizontally with the pin side on the right, in front of you.

77.2. Push the right hole of a dark green 3L axle connector, horizontally, onto the previous piece.

77.3. Push a red 2L axle, from the left, into the previous piece.

78.1. Push the right hole of a dark green 3L axle connector, horizontally, onto the left side of the previous piece.

78.2. Push a red 2L axle, from the left, into the previous piece.

79.1. Rotate the assembly so it's vertical, with the free side of the previous piece at the front. Find a dark tan 90 degree tube. This looks exactly like a macaroni noodle, except that it's dark tan and it probably won't taste very good if you cook it! Rotate this piece so the holes are at the left and back. Push the back hole onto the front side of the previous piece.

79.2. Push a red 2L axle, from the left, into the previous piece.

Group 19.

80.1. Push the right hole of a light brown 3L axle connector, horizontally, onto the left side of the previous piece.

80.2. Push a red 2L axle, from the left, into the previous piece.

80.3. Repeat steps 80.1-80.2.

81.1. Push the right hole of a green 90 degree tube, with the holes at the right and back, onto the previous piece.

81.2. Push a red 2L axle, from the back, into the previous piece.

Group 20.

82.1. Push the front hole of a dark green 3L axle connector, vertically, onto the previous piece.

82.2. Push a red 2L axle, from the back, into the previous piece.

83.1. Push the front hole of a green 90 degree tube, with the holes at the front and left, onto the previous piece.

83.2. Push a red 2L axle, from the left, into the previous piece.

83.3. Push the right hole of a green 90 degree tube, with the holes at the right and front, onto the previous piece.

83.4. Push a red 2L axle, from the front, into the previous piece.

You will have a green 90 degree tube left over when you finish group 20.

Group 21.

84.1. Push the back hole of a dark tan 90 degree tube, with the holes at the left and back, from the front onto the previous piece.

84.2. Push a red 2L axle, from the left, into the previous piece.

84.3. Push the right hole of the leftover green 90 degree tube, with the holes at the right and back, onto the previous piece.

84.4. Push a red 2L axle, from the back, into the previous piece.

85.1. Push the front hole of a dark tan 90 degree tube, with the holes at the front and left, onto the previous piece.

85.2. Push a red 2L axle, from the left, into the previous piece.

85.3. Push the right hole of a dark tan 90 degree tube, with the holes at the right and front, onto the previous piece.

85.4. Push a red 2L axle, from the front, into the previous piece.

86.1. Push the back hole of a dark tan 90 degree tube, with the holes at the left and back, from the front onto the previous piece.

86.2. Push a red 2L axle, from the left, into the previous piece.

86.3. Push the right hole of a dark tan 90 degree tube, with the holes at the right and back, onto the previous piece.

86.4. Push a red 2L axle, from the back, into the previous piece.

87.1. Push the front hole of a dark green 3L axle connector, vertically, onto the previous piece.

87.2. Push a red 2L axle, from the back, into the previous piece.

87.3. Push the front hole of a dark tan 90 degree tube, with the holes at the front and left, onto the previous piece.

87.4. Push a red 2L axle, from the left, into the previous piece.

88.1. Push the right hole of a dark tan 90 degree tube, with the holes at the right and on the top, from the left onto the previous piece.

88.2. Push a red 2L axle, from the top, into the previous piece.

89.1. Push the bottom hole of a dark tan 90 degree tube, with the holes at the right and on the bottom, from the top onto the previous piece.

89.2. Push a red 2L axle, from the right, into the previous piece.

90. Push the axle hole of a light gray ball with an axle hole onto the previous piece.

91. Place the tree, with the roots at the bottom and the platform on the left, in front of you. Find the 5L liftarm that's to the left of the front root at the bottom of the tree. Find the pin on the back right side of the vine. Push this pin into the leftmost hole of the 5L liftarm.

92. Pick up the ball at the left end of the vine. Rotate it up and to the right as far as it will go. It should hook over a small, angled branch with a flower on it.

Group 22.

93.1. Rotate the tree 90 degrees clockwise so the platform is at the back. Find the top branch that overhangs to the left of the tree. Find the L-shaped liftarm on the front of this branch. Push a black 2L pin from group A, from the back, into the left two free holes on the back side of the L-shaped liftarm.

93.2. Push a brown 3L bar, from the front, into the stud to the left of the L-shaped liftarm so it extends 2L to the front.

93.2. Find the pin that extends to the front of the left branch. Push a black 2L pin from group A, from the front, into the hole to the left of this pin.

93.3. Find the pin that extends to the back on the right branch. Push a black 2L pin from group A, from the back, into the hole to the right of this pin.

94.1. Next, we'll make a couple of small assemblies. Place a brown 1x1 brick with an axle hole, with the axle hole facing front and back, in front of you.

94.2. Push a red 2L axle, from the front, into the front side of the previous piece. Push it in until it extends 1L to the front.

94.3. Repeat steps 94.1-94.2.

94.4. Push the front side of the axle of one assembly, with the stud on top, from the back into the leftmost axle hole of the left branch. Push the other, from the back, into the rightmost axle hole of the right branch.

95.1. Push the holes of a brown 1x2 brick with two holes, horizontally with the studs on top, from the front onto the two pins on the front side of the left branch.

95.2. Push the holes of a brown 1x2 brick with two holes, horizontally with the studs on top, from the back onto the two pins on the back side of the right branch.

95.3. Find the L-shaped liftarm that's attached to the tallest upright liftarm. Find the two pins on the back side of this piece. Push the holes of a brown 1x2 brick with two holes, horizontally with the studs on top, from the back onto these pins.

Group 23 contains the orange pieces for the rest of the build.

96.1.1. Find a green 6x5 plant leaves. This piece is shaped kind of like a triangle with fourteen studs, only five of which have anti-studs. Each of the points of the triangle has a stud with an anti-stud. Place this piece, horizontally so it forms a triangle with the point on the right, in front of you. The point should have an anti-stud under it.

96.1.2. Place another green 6x5 plant leaves, vertically so it forms a triangle with the point at the front, in front of you. Place the front anti-stud on the left column of this piece onto the point of the first leaf.

96.2.1. Place a red 1x1 round plate with three leaves on one side, with the leaves pointing to the back, on the back left stud of the previous piece.

96.2.2. Push the bar of an orange 1L bar with two small leaves on one side from group 23, with the leaves on top, from the top into the hollow stud of the previous piece.

96.3. Place the rightmost stud of a green 6x5 plant leaves, horizontally so it forms a triangle with the point on the right, on the front stud of the second 6x5 plant leaves.

96.4. Push the bar of a light green 1L bar with two small leaves on one side, with the leaves on top, from the top into the rightmost hollow stud of the previous piece.

96.5. Find the 1x1 brick on the left end of the leftmost branch of the tree. Place the stud that has the green bar with leaves onto this stud. The rest of the leaf assembly should overhang to the left.

You will have two orange 1L bars with two small leaves and one orange 1x1 plate with a triangle on one side left over from group 23.

Group 24.

97.1.1. Let's make another leaf assembly! Place a light green 6x5 plant leaves, horizontally so it forms a triangle with the point on the left, in front of you.

97.1.2. Place the back stud of a light green 1x2 plate with rounded ends, vertically, on the leftmost stud of the previous piece.

97.2. Place the rightmost stud of a light green 6x5 plant leaves, horizontally so it forms a triangle with the point on the right, under the front stud of the previous piece.

97.3. Push the bar of a light green 1L bar with two small leaves on one side, with the leaves on top, from the top into the front hollow stud of the 1x2 plate with rounded ends.

97.4. Place the left stud of a light green 6x5 plant leaves, horizontally so it forms a triangle with the point on the left, under the back right stud of the right 6x5 plant leaves. Rotate this about 45 degrees clockwise.

97.5.1. Place a red 1x1 round plate with three leaves on one side, with the leaves pointing to the back, on the back left stud of the previous piece.

97.5.2. Push the bar of an orange 1L bar with two small leaves on one side from group 23, with the leaves on top, from the top into the hollow stud of the previous piece.

97.6. Rotate the leaf assembly 90 degrees counterclockwise. Find the 1x2 brick on the left branch. Place the two studs under the 1x2 plate with rounded ends on the leaf assembly on this brick.

98.1.1. Now we'll build a bird. Place a white 1x1 round plate in front of you.

98.1.2. Place a white 1x1 brick with studs on all four sides on the previous piece.

98.2. Place a white 1x1 round plate on the left side of the previous piece. Place another on the first.

98.3. Place a red 1x1 slope tile, with the tall side at the bottom, on the right side stud of the bird.

98.4. Now we'll add some wings! Place a white 1x1 plate with a triangle on one side, with the triangle on the left, on the front side of the bird. Repeat symmetrically on the back side.

98.5.1. Place an orange 1x1 plate with a triangle on one side from group 23, with the triangle on the right, on top of the bird. This is the beak of the bird.

98.5.2. Place a red 1x1 tile with a clip on top, with the fingers of the clip on the left and right, on the previous piece.

98.6. Push the bar of a yellow 1L bar with a clip, with the bar on top and the fingers of the clips at the front and back, from the bottom into the hollow anti-stud at the bottom of the bird.

98.7. Rotate the bird so the beak is at the back and clip the previous piece onto the bar that extends from the front of the left branch.

99.1.1. Let's make another leaf assembly! Place a light green 6x5 plant leaves, horizontally so it forms a triangle with the point on the right, in front of you.

99.1.2. Place the back stud of a light green 1x2 plate with rounded ends, vertically, on the rightmost stud of the previous piece.

99.2. Place the leftmost stud of a light green 6x5 plant leaves, horizontally so it forms a triangle with the point on the left, under the front stud of the previous piece.

99.3. Push the bar of a light green 1L bar with two small leaves on one side, with the leaves on top, from the top into the back hollow stud of the 1x2 plate with rounded ends.

99.4. Place the left stud of a light green 6x5 plant leaves, horizontally so it forms a triangle with the point on the left, on the back right stud of the right 6x5 plant leaves. Rotate this about 45 degrees counterclockwise.

99.5. Push the bar of a light green 1L bar with two small leaves on one side, with the leaves on top, from the top into the leftmost hollow stud of the previous piece.

99.6. Rotate this leaf assembly 90 degrees counterclockwise. Find the 1x2 brick that's on the back side of the L-shaped liftarm between the branches. Place the two studs under the 1x2 plate with rounded ends on the leaf assembly on this brick.

Group 25.

You will have one orange 1L bar with two small leaves leftover from group 23.

100.1. We'll make some more leaves! Place a green 6x5 plant leaves, horizontally so it forms a triangle with the point on the left, in front of you.

100.1.2. Place the back stud of a light green 1x2 plate with rounded ends, vertically, on the leftmost stud of the previous piece.

100.2. Place the rightmost stud of a green 6x5 plant leaves, horizontally so it forms a triangle with the point on the right, under the front stud of the previous piece.

100.3. Push the bar of a light green 1L bar with two small leaves on one side, with the leaves on top, from the top into the front hollow stud of the 1x2 plate with rounded ends.

100.4.1. Place an orange flower petal piece on the middle stud of the left 6x5 plant leaves.

100.4.2. Place a pale yellow bird on the previous piece.

100.5 Push the left stud of a green 6x5 plant leaves, horizontally so it forms a triangle with the point on the left, under the front right stud of the right 6x5 plant leaves.

100.6.1. Place a red 1x1 round plate with three leaves on one side, with the leaves pointing to the back, on the left stud of the previous piece.

100.6.2. Push the bar of an orange 1L bar with two small leaves on one side from group 23, with the leaves on top, from the top into the hollow stud of the previous piece.

100.7. Rotate the leaf assembly 90 degrees counterclockwise. Find the 1x2 brick on the right branch. Place the two studs under the 1x2 plate with rounded ends on the leaf assembly on this brick.

101.1.1. We'll build one more leaf assembly! Place a green 6x5 plant leaves, horizontally so it forms a triangle with the point on the left, in front of you.

101.1.2. Place the front stud of a green 6x5 plate leaves, vertically so it forms a triangle with the point at the front, on the leftmost stud of the previous piece.

101.2. Push the bar of a light green 1L bar with two small leaves on one side, with the leaves on top, from the top into the front hollow stud of the previous piece.

101.3. Find the 1x1 brick on the right branch. Place the stud that's under the previous piece on the brick we just found.

102.1.1. Let's build a pinecone. Place a red 2L axle, vertically, in front of you.

102.1.2. Push the anti-stud of a brown 1x1 cone, from the back with the stud at the back, onto the previous piece.

102.2.1. Push a brown 2L bar with a stop ring, from the back, into the hollow stud of the previous piece.

102.2.2. Push the hollow anti-stud of a brown 1x1 brick with studs on all four sides, with the anti-stud at the front, onto the back side of the previous piece.

102.3. Push the short bar of a short bar with three small stems on one side, with the stems pointing away from the 1x1 brick into each of the four hollow side studs on the assembly.

102.4. Find a red axle and pin connector #1. This piece has a 1L axle connector on one side, and a perpendicular pin hole on the other. Push the axle connector of this piece, with the axle connector at the back and the pin hole at the front facing left and right, onto the axle at the front of the pinecone.

102.5. Rotate the pinecone so the previous piece is at the top with the holes facing left and right. Find the axle that is below the right branch of the tree. This axle is near the top of the trunk. Slide the hole on top of the pinecone onto this axle so the pinecone hangs down.

102.6. Now you can place the minifigures on the platform!

Congratulations! Now this build is complete!

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