

FIRST® LEGO® League Explore BIOGLOW™ Building Instructions

Build 1

This build is 184 pieces, and 63 building steps.

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.

Sorting Instructions:

This LEGO set comes in the bags labeled 1-3 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.

Build 1

Bag 1 (3 groups of bricks) Main Build

Group 1 contains the pieces for steps 1-6. Include a green 16x16 plate from bag 0.

Group 2 contains the pieces for steps 7-14.

Group 3 contains the pieces for steps 15-22, not including the brown 1x1 quarter circle tile from step 21.

Group 4 contains the brown 1x1 quarter circle tile from step 21.

Bag 2 (3 groups of bricks)

Group 5 contains the pieces for steps 23-30. Include two brown 3x3x5 quarter cylinders with 1x2 arch tops from bag 0.

Group 6 contains the pieces for steps 31-43. Include two brown 3x3x5 quarter cylinders with 1x2 arch tops from bag 0.

Group 7 contains the pieces for steps 44-54.

Bag 3 (2 groups of bricks)

Group 8 contains the pieces for steps 55-61.

Group 9 contains the pieces for steps 62-63.

Building Instructions:

Group 1.

Main Build

1.1. We're going to build a tree! Let's start by placing a base. Place a green 16x16 plate in front of you.

1.2. Next, we'll build the bottom of the tree. Place a red 2x2 brick, centered vertically and horizontally, on the previous piece. There will be seven free rows in front of and behind this piece, and seven free columns on either side.

2. Place a dark green 2x6 brick, vertically and centered vertically, to the left of the previous piece. Repeat on the right side so the whole thing looks like a capital letter H.

3.1. Place a red 2x2 brick in front of the first 2x2 brick. The front side will be even with the front of the H.

3.2. Place a yellow 2x3 brick, vertically, behind the 2x2 brick that's behind the previous piece. The back row will extend behind the H.

4.1. Place a blue 1x2 brick, horizontally, behind the previous piece. Place another, horizontally and centered horizontally, in front of the front 2x2 brick from step 3.1.

4.2. Place a blue 1x2 brick, vertically and centered vertically, to the left of the left 2x6 brick. Repeat symmetrically on the right side. The bottom of the tree should look kind of like a circle now.

5.1. Place a dark green 2x6 brick, horizontally and centered horizontally, on the second and third rows from the front of the tree. There will be a horizontal 1x2 brick in front of this piece.

5.2. Place a light brown 2x4 brick, vertically, behind the previous piece so the left sides are even. Repeat symmetrically on the right side. The top layer of the tree should look like a capital letter U now.

5.3. Place the front row of a red 2x2 brick between the back rows of the two pieces from the previous step. The back of this piece will be in front of a 1x2 brick.

6.1. Next, we'll widen the base of the tree! Find a brown 1x5x4 inverted half arch. This piece has only two studs, is curved on top, and is stepped on the bottom. Rotate it so it's vertical with the tall side at the front and place the front stud on the back left corner of the previous piece. The back side should touch the back of the 16x16 plate. Place another to the right of the first.

6.2. Repeat the previous step symmetrically on the front side of the tree. There will be one free row in front of the front pair.

6.3. Next, we'll repeat the previous two steps on the left and right sides of the tree! Find the 1x2 brick that's on the left side of the tree. Place a brown 1x5x4 inverted half arch, horizontally with the tall side on the right, on this piece so the front sides are even, and so there is one free stud to the left of the inverted half arch. The right stud should attach to the tall part of the tree. Place another behind the first.

6.4. Repeat the previous step symmetrically on the right side of the tree. These eight pieces look like the base of the tree is reaching down into the ground.

Group 2.

7.1. Place a brown 2x2x2 tall slope brick, with the slope on the right, in front of the right two pieces from the previous step and to the right of the rest of the tree. There will be three free columns to the right of this piece. Repeat symmetrically on the left side.

7.2. Place a brown 2x2 double slope brick, with the one stud at the back left, to the right of the front pair of inverted half arches so the back touches the right of the tree. There will be three free studs in front of the left side of this piece. Repeat symmetrically on the left side.

8.1. Find a dark brown 1x2 right wedged curved slope tile. If you place this piece, vertically with the point at the front, in front of you, the longest side will be on the right. Place the back stud of one of these, vertically with the point at the front, on the front stud of the left inverted half arch that's on the front side of the tree. Place a dark brown 1x2 left wedged curved slope tile symmetrically to the right of the first. These pieces should form a point at the front.

8.2. Repeat the previous step on the left and right pairs of inverted half arches, so that the points of the slope tiles point away from the center of the tree.

9.1. Next, we'll add some roots poking through the ground. Find the 2x2x2 tall slope brick that's in front of the left pair of inverted half arches. Find a light brown 2x2 rounded corner tile. This tile is cut out so it looks like a macaroni noodle, I'll call pieces with this shape "macaroni" from now on. Place the macaroni tile, with the flat sides on the right and the front, in front of this tall slope brick.

9.2. Place the back row of a brown 3x3 corner plate with a rounded corner, with the rounded corner at the back left, to the left of the front row of the same tall slope brick we found in the previous step.

9.3. Find the 2x2x2 tall slope brick that's in front of the right pair of inverted half arches. Place the left column of a brown 3x3 corner plate with a rounded corner, with the rounded corner at the front left, in front of the left column of the tall slope we just found.

10.1. Now, we'll round out the roots we just placed. Place a brown 1x1 quarter circle tile, with the flat sides at the front and left, to the right of the front column of the previous brown 3x3 corner plate piece.

10.2. Find the 2x2 macaroni tile from step 9.1. Place a brown 1x1 quarter circle tile, with the flat sides at the back and right, in front of the left stud of this piece.

10.3. Find the 3x3 corner plate with a rounded corner that's to the left of the macaroni tile. Place a brown 1x1 quarter circle tile, with the flat sides at the back and left, in front of the left stud of this piece.

10.4. Find the 2x2 double slope brick that's to the left of the front pair of inverted half arches. Place a brown 1x1 quarter circle tile, with the flat sides at the back and right, in front of the right stud of this piece.

10.5. Place a brown 1x1 quarter circle tile, with the flat sides at the back and left, in front of the right pair of inverted half arches and to the right of a 2x2x2 tall slope brick.

11.1. Find the two 2x2 double slope bricks that are on either side of the front inverted half arches. Place a green 1x1 brick with a stud on one side, with the side stud at the front, on each of these two pieces.

11.2. Find the 2x2x2 tall slope brick that's in front of the left pair of inverted half arches. Place the right stud of a green 1x3x3 inverted half arch, horizontally with the tall side on the right, on the back stud of this piece. Repeat symmetrically on the right side. There will be two free studs between these pieces.

12. Place a brown 2x2 double slope brick, with the stud at the back right, in front of the left piece from the previous step and to the left of a 1x5x4 inverted half arch. Repeat symmetrically on the right side.

13. Place a green 1x1 brick with a stud on one side, with the side stud at the front, on each of the previous two pieces.

14. Rotate the tree 180 degrees so the side with the roots is at the back. There should be two 1x5x4 inverted half arches at the front whose front studs are free. Place a black 1x2x2 tall brick, vertically, inside the tree to the right of the left pair of 1x5x4 inverted half arches. Place another in front of the first. Repeat these two pieces symmetrically on the right side. There will be two free columns between these pairs of pieces.

Group 3.

15. The tallest part of the tree now has a row of four studs at the back. Place the back row of a brown 3x6 half circle plate, horizontally with the rounded part at the back, on this row.

16. Place a dark brown 1x2 brick, vertically, to the left of the front pair of 1x5x4 inverted half arches so there are three free studs in front of it. Repeat symmetrically on the right side.

17.1. Place a tan 1x2 inverted half arch, horizontally with the stud on the right, to the left of the back stud of the left piece from the previous step. Repeat symmetrically on the back side.

17.2. Place a tan 1x2 inverted half arch, vertically with the stud at the back, in front of the stud of each of the previous two pieces.

18. Place the back left stud of a brown 2x2 double slope brick, with the stud at the back right, on the left 1x2 inverted half arch that's horizontal from step 17.1. This piece will be to the left of the front pair of 1x5x4 inverted half arches. Repeat symmetrically on the right side.

19. Place a green 1x3x3 inverted half arch, horizontally with the tall side on the right, in front of the left pair of 1x5x4 inverted half arches so there are two free studs to the left of it. The right side should touch the rest of the tree.

20.1. Place the left stud of a tan 1x2 inverted half arch, horizontally with the stud on the right, on the previous piece so the right side connects to the rest of the tree.

20.2. Place a green 1x1 brick with a stud on one side, with the side stud on the left, on the previous piece.

Group 4 contains a brown 1x1 quarter circle tile from the next step.

21.1. Place a brown 1x1 quarter circle tile from group 4, with the flat sides on the right and back, in front of the 1x3x3 inverted half arch from step 19 and to the left of the rest of the tree. There will be four free studs to the left of this piece.

21.2. Place a light brown 1x1 quarter circle tile, with the flat sides on the right and back, to the left of the 1x3x3 inverted half arch from step 19.

21.3. Find the left pair of 1x2 inverted half arches that are on the 16x16 plate, near the front. Place the back stud of a tan 2x2 macaroni tile, with the flat sides at the front and right, to the left of the back one. Place the right stud of another tan 2x2 macaroni tile, with the flat sides at the left and back, in front of the other 1x2 inverted half arch.

21.4. Place a light brown 1x1 quarter circle tile, with the flat sides on the right and front, to the left of the front stud of the front piece from the previous step. Place another, with the flat sides at the back and right, in front of the left stud of the other macaroni tile from the previous step.

22.1. Now we'll add some roots to the other 1x2 half arches! Find the right pair. Place the back stud of a tan 2x2 macaroni tile, with the flat sides at the left and front, to the right of the back one.

22.2. Place a light brown 1x1 quarter circle tile, with the flat sides on the right and back, in front of the right stud of the previous piece.

22.3. Place a light brown 1x1 quarter circle tile, with the flat sides on the right and back, in front of the other 1x2 inverted half arch.

22.4. Place the left column of a brown 2x2 double slope brick, with the one stud at the back left, behind the right stud of the back 1x2 half arch in the right pair. It will be in front of the right pair of 1x5x4 half arches.

Bag 2.

Group 5.

23. The 16 x 16 plate with the tree should be in front of you, and the front pair of 1x5x4 inverted half arches should have free studs at the front. Find the 3x6 half circle plate that's on top of the tree. It should be at the back of the tall portion. Find a brown 3x3x5 quarter cylinder with two 1x2 arch tops. This will be part of the tree trunk. Place this, with the curved side at the back left, on the left half of the 3x6 half circle plate. Place another symmetrically to the right of the first.

24. Place a tan 1x5x4 half arch, horizontally with the arch overhanging to the right, in front of the right pair of 1x5x4 inverted half arches and to the right of a 1x2x2 tall brick.

25. Place the front right corner of a dark green 2x6 brick, horizontally, on the leftmost stud of the previous piece. The left side of this piece will be even with the left side of the tree.

26.1. Place a tan 1x3 brick, horizontally, on the front row of the previous piece so the rightmost stud overhangs and attaches to the tan 1x5x4 half arch from step 24.

26.2. Place a dark brown 1x2 brick, horizontally, behind the previous piece so the left sides are even.

26.3. Place a green 1x2 brick with two studs on one side, vertically with the side studs on the left, on the leftmost column of the 2x6 brick from step 25.

26.4. Place a dark brown 1x2 brick, vertically, to the right of the previous piece.

27. Place a brown 2x2 brick on the previous two pieces. Skip two columns to the right and place another. The second will attach to a 1x2 and a 1x3 brick.

28. Place a brown 2x2x5 angled wall panel, with the angled side at the front left, in front of the left piece from the previous step so the left sides are even. The top should be even with the piece behind it. Repeat symmetrically on the right side of the tree.

29. Place the back stud of a brown 1x2x3 inverted slope brick, vertically with the slope at the front, to the right of the front stud of the left piece from the previous step. The slope will extend one stud to the front. Place another to the right of the first.

30.1. Find the two 3x3x5 quarter cylinders at the back of the tree. Place a brown 1x6x3 arch, horizontally and centered horizontally, in front of the two pieces we just found.

30.2. Place a brown 1x6 plate, horizontally, on the previous piece.

Group 6.

31.1. Place a light brown 3x3 corner plate with a rounded corner, with the rounded corner at the front left, in front of the previous piece so the left sides are even. Place another symmetrically to the right of the first.

31.2. Place a green 1x2 plate with rounded ends, horizontally and centered horizontally, in front of the previous two pieces. It will attach to the slopes of the two 1x2x3 inverted slope bricks from step 29.

32. Place a brown 3x3x5 quarter cylinder with two 1x2 arch tops, with the curved side at the front left, on the left 3x3 corner plate with a rounded corner that's behind the previous piece. Place another symmetrically to the right of the first.

33. The front arch tops from the previous two pieces will meet and make a 2x2 of studs that overhangs the front of the tree. Place a green 1x2 plate with rounded ends, horizontally, on the back row of these studs.

34.1. Now we'll do the same thing on the other side of the tree. Rotate the tree 180 degrees. Find another pair of arch tops that extend from the front side of the tree. Place a green 1x2 plate with rounded ends, horizontally, on the back row of these studs.

34.2. Place a brown 2x4 brick, horizontally and centered horizontally, on the front two rows of the tree trunk. These are the rows behind the previous piece.

35.1. Next, we'll build a platform that goes in the tree. Set the tree aside for now. Place a green 2x3 plate, horizontally, in front of you.

35.2. Place a brown 1x4x2 ornate fence panel, vertically and centered vertically, on the rightmost column of the previous piece so the front and back studs overhang.

36. Place the rightmost stud of a brown 1x10 plate, horizontally, under each of the two overhanging studs on the previous piece. These pieces will go in front of and behind the 2x3 plate.

37. Place a green 1x1 round brick on each of the previous two pieces and to the left of the 1x4x2 fence panel.

38.1. Place a brown 1x4x2 ornate fence panel, vertically and centered vertically, on the leftmost column of the assembly.

38.2. Place the leftmost column of a green 2x3 plate, horizontally and centered vertically, under the previous piece.

39. Place a green 1x1 round brick to the right of the front stud of the left 1x4x2 ornate fence panel. Repeat symmetrically on the back side.

40. Place a light brown 1x4 brick with a log pattern, horizontally and centered horizontally, on the front row of the platform assembly. Repeat symmetrically on the back side.

41.1. Place a brown 1x12 brick, vertically, to the left of the previous two pieces so it overhangs the front of the platform by two studs. Repeat symmetrically on the right side.

41.2. Place a green 1x2 tile, vertically, on the front two studs of each of the previous two pieces.

42. Place a green 1x8 tile, horizontally and centered horizontally, behind the previous two pieces. Skip two rows behind the first and place another.

43. Now we'll place the platform on the tree. Place the tree back in front of you so the taller half of the trunk is at the back. There should be a 2x4 brick horizontally on the front two rows of the trunk. Place the two 1x12 bricks on the platform on either side of the 2x4 brick, and in front of the two 3x3x5 quarter cylinders that form the back half of the trunk. The front part of the platform should overhang.

Group 7.

44. Place a brown 1x5x4 half arch, horizontally with the arch overhanging to the left, on the back stud of the left 1x12 brick on the platform so it overhangs to the left. Repeat symmetrically on the right side.

45. Place a brown 1x6x3 arch brick, horizontally and centered horizontally, in front of the previous two pieces.

46.1. Place a green 1x1 plate with a triangle hanging down from one side, with the triangle on the left, in front of the leftmost stud of the previous piece. Repeat symmetrically on the right side.

46.2. Place a light green 1x1x2 tall brick with two studs on one side, with the side studs on the left, on the left piece from the previous step. Repeat symmetrically on the right side.

47.1. Place a brown 1x5x4 half arch, horizontally with the arch overhanging to the left, in front of the left piece from the previous step so it overhangs to the left. Repeat symmetrically on the right side.

47.2. Place a brown 2x4x3 half cylinder, horizontally with the curved side at the front, between the previous two pieces and in front of a 1x6x3 arch brick. The front side will be even with the front of the previous two pieces.

48.1. Place a brown 1x2x2 tall brick, horizontally and centered horizontally, on the back row of the trunk. This will be on the two tallest 3x3x5 quarter cylinders.

48.2. Place the front stud of a brown 1x5x4 half arch, vertically with the arch overhanging to the back, to the left of the previous piece so it overhangs to the back. Repeat symmetrically on the right side.

49. Place the right column of a green 2x6 plate, vertically, in front of the left piece from the previous step. Place two more to the right of the first to make a square platform at the top of the tree.

50.1. Place a green 1x4 plate, horizontally and centered horizontally, behind the previous three pieces. This piece will attach to a 1x2x2 tall brick and two 1x5x4 half arches.

50.2. Place the back stud of a brown 1x5x4 half arch, vertically with the arch overhanging to the front, on the front right corner of the 6x6 platform on top of the tree so it overhangs to the back.

50.3. Place a green 1x3x3 inverted half arch, vertically with the stud at the front, behind the previous piece.

51. Repeat steps 50.2 and 50.3 symmetrically on the left side of the tree.

52.1. Place a brown 1x6 brick, vertically, to the right of the previous two pieces and so the front side is even with the platform of 2x6 plates. Repeat symmetrically on the right side. There will be a gap of two columns between these two pieces.

52.2. Place a dark brown 1x2 brick, vertically, on the front two studs of each of the previous two pieces.

53. Place the front stud of a brown 1x2x2 curved slope tile, vertically with the tall side at the back, on the back stud of each of the 1x6 bricks that are under the previous two pieces. The back stud will attach to a 1x4 plate from step 50.1.

54. Place the right column of a brown 2x2 plate on the left 1x2 brick from step 52.2. Repeat symmetrically on the right side.

Bag 3.

Group 8.

55.1. Our tree is pretty empty right now. Let's add some leaves to fix that! The tree should be in front of you, with the overhanging platform at the front. There are about five half arches that extend from the left side of the tree like branches. Find the lowest one that overhangs four studs to the left. Place the front stud of a dark green 1x2 plate with a rounded end and a large curved leaf, vertically with the leaf at the back, on the leftmost stud of the branch we found.

55.2. Place the back stud of a dark green 1x2 plate with a rounded end and a large curved leaf, vertically with the leaf at the front, to the right of the front stud of the previous piece.

56. Place a dark green 1x2 plate with a rounded end and a large curved leaf, horizontally with the leaf on the left, so it connects the previous two pieces and overhangs to the left.

57. Place the left stud of a dark green 1x2 curved slope tile, horizontally with the tall side on the left, on the right stud of the previous piece.

58. Rotate the tree 90 degrees clockwise so the platform is on the left. There are four side studs on the front side of the tree. Find the row of two side studs. Find a dark green 4x3 plant leaves. This piece has a total of six studs, but only the two at the ends have anti-studs. Rotate this piece so it's horizontal with the anti-studs at the back, and so the branches look like an arrow pointing to the left. Place the left anti-stud on the right side stud in the row of two that we found.

59. Push the bar of a green bar with two small leaves on one side through the leftmost hollow stud of the previous piece.

60.1. Next, we'll add some large leaves! These will all be green 6x5 plate leaves. These pieces are 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. The trunk of the tree has four pairs of 1x5x4 half arches which form branches near the top: one pair extending in each direction. Find the front pair.

60.2. Place a green 6x5 plate leaves, 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. Place this stud on the second stud from the front on the left branch on the front side of the tree so it overhangs to the left.

60.3. Place the point of another green 6x5 plate leaves, vertically so it forms a triangle with the point at the back, in front of the point of the previous piece so it overhangs to the front.

60.4. Repeat the previous step on the right side of the tree. Then repeat these four leaves on the back side of the tree. You'll place a total of eight green 6x5 plate leaves.

61. Place the front two studs of a green 1x3 plate, vertically, on the points of each of the front two pairs of 6x5 plate leaves. The back studs will connect the leaves to the branches. Repeat symmetrically with the back pair.

Group 9.

62.1. Next, we'll repeat this with another layer of leaves! These will also be 6x5 plate leaves, but they are light green to add some depth of color. Rotate the tree 90 degrees counterclockwise so the platform is at the front. Place the point of a light green 6x5 plate leaves, horizontally so it forms a triangle with the point on the right, on the second stud from the front on the left branch on the front side of the tree so it overhangs to the left.

62.2. Place the point of another light green 6x5 plate leaves, vertically so it forms a triangle with the point at the back, in front of the point of the previous piece so it overhangs to the front.

62.3. Repeat the previous step on the right side of the tree. Then repeat these four leaves on the back side of the tree. You'll place a total of eight light green 6x5 plate leaves.

63. Place the front two studs of a light green 1x3 plate, vertically, on the points of each of the front two pairs of 6x5 plate leaves. The back studs will connect the leaves to the branches. Repeat symmetrically with the back pair.

Congratulations! Now this build is complete!

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