

# FIRST® LEGO® League Explore SUBMERGED<sup>SM</sup> Building Instructions

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: with the longest side going from front to back
- Horizontally: with the longest side 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.
- Technic brick: a brick which contains one or more holes which accept technic pins.

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.

PDF versions will be provided. As low vision users may benefit from viewing the instructions on a personal device where they can zoom in on content and use assistive technologies to enhance the visuals.

## Sorting the pieces:

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

## Build 1: Submarine

This build is 126 pieces, and 48 building steps.

## Sorting Instructions:

This LEGO set comes in the bags labeled 1 and 2. Additional pieces are in the bag labeled 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 may be split across two groups, or made into stacks to make telling the difference easier for the builder.

#### Bag 1 (7 groups of bricks)

Group 1 contains the pieces to build the first minifigure as shown on page 4.

Group 2 contains the pieces to build the second minifigure as shown on page 5, but not including the diving equipment.

Group 3 contains the orange diving equipment from page 5.

Group 4 contains the white diving equipment from page 5.

Group 5 contains the pieces for steps 1-9. The white 8x8x2 double inverted curved slope is contained in bag 0 in the FLL kit. This piece has no studs on the curved side.

Group 6 contains the pieces for steps 10-13.

Group 7 contains the pieces for steps 14-17.

Bag 2 (5 groups of bricks). This bag also includes a small cardboard box containing a rubber band.

Group 8 contains the pieces for steps 18-21. To help the builder differentiate between colors, stack the two white 2x2 round plates from step 20 together and leave the orange ones unstacked. The white 8x8x2 double curved slope is contained in bag 0. This piece does have studs on the curved side.

Group 9 contains the pieces for steps 22-30.

Group 10 contains the pieces for steps 31-33. The transparent 6x6x3 half-sphere canopy with hinge fingers is contained in bag 0.

Group 11 contains the pieces for steps 34-44. This includes the small cardboard box which contains the rubber band for this group.

Group 12 contains the pieces for steps 45-48.

#### Building Instructions:

##### Minifigure #1:

##### Open group 1:

The first minifigure is a girl wearing purple pants and a white tee-shirt with a raccoon face on the front and pink arms. She has dark brown hair which is tied up in buns on each side of her head. Build the minifigure by placing the legs in front of you with the feet pointing to the front. Then put the torso on the legs so the elbows point away from you when the arms hang down. Finish the minifigure by putting the head on the torso and the hair on top of the head.

##### Minifigure #2:

##### Open group 2:

The second minifigure is a little boy wearing brown pants and a white shirt with horizontal red stripes. He has shaggy blonde hair. Assemble this minifigure in the same way as the first. Note that the legs are shorter and do not bend!

##### Minifigure accessories:

There are two sets of accessories for these two figures. They are a dive helmet with a mask, swim fins, and scuba tanks. One set is white, and one set is orange, and you can put them on either minifigure! Group 3 is the orange set, and group 4 is the white set.

1. To do this, assemble the diving helmet by clipping the C shaped mask over the front opening on the helmet. If you hold the helmet so the big hole is at the bottom, and the front opening is at the front, the snorkel on the mask should be on the right.
2. Remove the minifigure's hair from their head, then remove the head from the torso. Slide the loop on the scuba tanks down over the neck stud so that the tanks hang down on the minifigure's back, then put the head back on.
3. Leaving the hair off, put the helmet onto the minifigure's head.
4. Finally, put the swim fins on the minifigures feet so that they point forwards.

Main build: Submarine

Open group 5

1. Find a white 8x8x2 double inverted curved slope. This looks like a 4x8 plate with 2x8 inverted curved slopes on the two long sides. Place this upside down in front of you with the tall sides at the front and back. This will be the base of the submarine. Until we flip the submarine rightside up in step 5, keep placing pieces upside down.
2. Find a light gray 1x4 plate with two hinge fingers on one side. This looks like a 1x4 plate which has two squares sticking off of one long side, between the first and second studs from the left and right sides. These are hinges which click every few degrees. Place this piece, vertically with the fingers on the left, on the leftmost column of anti-stud of the previous piece.
3. Place a light gray 2x4 plate vertically to the right of the previous piece.
4. Place a light gray 1x4 plate vertically to the right of the previous piece.
5. Place a light gray 1x6 plate horizontally to the right of the previous piece, with their front edges even. Place another symmetrically on the back side. Now, keeping the hinge fingers on the left, flip the submarine rightside up. Unless otherwise told, place the following pieces rightside up!
6. We'll extend the bottom of the submarine now. Find a white 2x8x2 double inverted curved slope. This looks like a shorter version of the piece from step one. Place this vertically on the right two studs of the pieces from the previous step so that it is in line with the 8x8x2 piece from step 1.
7. Place a light pink 1x2 slope brick with the stud at the front vertically on the second and third studs from the front on the leftmost column. Place another symmetrically on the back side.
- 8.1. Now we will place the steering controls for the submarine. Place a blue 1x2 tile with a steering wheel, centered vertically with the wheel pointing to the right, on the second column from the left in the submarine.
- 8.2. Place a dark blue seat, centered vertically with the seatback on the right, to the right of the previous piece.
9. Place a light purple 2x2 slope brick, with the studs at the front, on the second and third studs from the front on the right two columns of the submarine. Place another symmetrically on the back side.

Open group 6.

- 10.1. Place a bright light blue 1x2 brick vertically on the front two studs of the right column of the submarine. Place another symmetrically on the back side.

10.2. Place a dark blue 2x2 corner brick, with the empty stud at the back left so it's oriented like a braille letter J, to the left of the front piece from the previous step so its front edge is even with the front of the submarine. Place another symmetrically on the back side.

11.1. Place a blue 2x2 brick on the front two rows, even with the right side of the submarine. Place another symmetrically on the back side.

11.2. Place a dark gray 1x1 brick with a pin hole, with the hole at the front and back, to the left of the front piece from the previous step, even with the front of the submarine. Place another symmetrically on the back side.

12. Place a blue 1x4x2 tall panel with two window holes, horizontally with the flat side at the front, on the front row so there are three free studs to the left of it. Place another symmetrically on the back side.

13.1. Place a blue 1x2 brick with two studs on one side, with the side studs at the front, to the left of the front piece from the previous step. Place another symmetrically on the back side.

13.2. Place a bright light blue 1x2 brick vertically to the left of the front piece from the previous step, even with the front of the submarine. Place another symmetrically on the back side.

Open group 7.

14. Place a light blue 1x1 brick with an axle hole, with the hole at the front and back, to the left of the front window panel. Place another symmetrically on the back side.

15.1. Place a light blue 1x2 brick horizontally to the left of the front piece from the previous step. Place another symmetrically on the back side.

15.2. Place a light blue 1x1 round brick behind the left stud of the front piece from the previous step. Place another symmetrically on the back side.

16.1. Place a dark blue 1x2 tile vertically on the leftmost column, even with the front edge of the submarine. Place another symmetrically on the back side.

16.2. Place a dark blue 1x4 tile with two studs horizontally to the right of the previous piece, even with the front of the submarine. Place another, in the same orientation, to the right of the first. Repeat these two pieces symmetrically on the back side of the submarine.

17. Place a dark blue 2x2 corner plate, with the free stud at the front left so it is oriented like a braille letter D, to the right of the front right piece from the previous step so it is even with the front and right sides of the submarine. Place another symmetrically on the back side.

Open bag 2.

Open group 8. There are two 2x2 round plates that are stuck together in this group, and two more that are loose. The ones stuck together are white and the loose ones are orange

18. Now, keeping the hinge fingers on the left side of the submarine, flip it over so the studs point down. Place a light gray 2x3 inverted slope brick, centered vertically with the sloped side on the left and the studs pointing down, on the submarine so the left edges are even.

19.1. Find a Technic 4x4 brick with an open center. This looks like a 4x4 brick which has a 2x2 empty center. There are three holes each on two of the sides, and one hole each on the other sides. Place this piece, with the studs pointing down and the sides with three holes at the front and back, to the right of the previous piece.

19.2. Push a black 2L pin from the front into the leftmost and rightmost holes on the front of the previous piece. Repeat this symmetrically on the back side.

20.1. Now we will build two small floats that are attached to the bottom of the submarine. Place a white 2x2 round plate with a rounded bottom in front of you.

20.2. Place an orange 2x2 round brick with a hole through the side, with the hole at the front, on the previous piece.

20.3. Place an orange 2x2 round plate on the previous piece. Remember that the orange 2x2 round plates are the ones that are loose in this group.

20.4. Place a white 2x2 round plate on the previous piece.

20.5. Place an orange 2x2 round brick with a hole through the side, with the hole at the front, on the previous piece. Make sure the hole on this piece and the one from step 20.2 are in the same orientation!

20.6. Place an orange 2x2 dome brick on the previous piece.

20.7. Repeat steps 20.1-20.6 to make a second float.

20.8. Keeping the holes at the front, rotate one float so the dome is on the left. Push the holes from the front onto the two pins on the front side of the submarine. Repeat this on the back side of the submarine with the other float. Both domes should be on the left.

21.1. Now we will build the roof of the submarine. Set the bottom of the submarine aside for now. Place a pale blue 1x6 arch brick vertically in front of you.

21.2. Find a white 8x8x2 double curved slope. This piece is curved and has two rows of 8 studs on top, with a cut out and three holes on two opposite sides. Place this piece, centered vertically with the rows of studs horizontal, on the previous piece so the left edges are even. The arch from the previous step should fit into the cutout on the left side of the piece. This big piece is the roof of the submarine! It will be easy to remove so you can access the figures inside.

21.3. Find a 1x2 pin connector plate with two pin holes. This looks like a 1x2 tile with a 2L lift-arm standing upright in the middle. Place this piece, centered vertically with the holes facing left and right, on the leftmost column of the previous piece.

21.4. Place a black 2x3 slope brick, with the slope on the right, to the right of the previous piece.

21.5. Place the bottom of the submarine in front of you, with the floats on the bottom and the hinge fingers on the left. Place the roof, with the 1x2 pin connector plate on the left, on the submarine so the left and front edges are even.

Open group 9.

22.1. Next we'll build the first motor assembly for the submarine. This turns a small propeller on top of the submarine. When it's used in the water, a propeller is called a screw. Set the rest of the submarine aside for now. Place a light blue 1x8 Technic brick horizontally in front of you.

22.2. Push a white 1x2 brick with a pin on one side, with the pin at the back, into the leftmost hole of the previous piece, pushing it in from the front so the left edges are even. Repeat this on the right side.

23. Place a blue 1x2 plate with rounded corners horizontally on the third and fourth studs from the left on the 1x8 Technic brick. Place another horizontally to the right of the first.

24. Place a white 1x4 plate horizontally on the previous two pieces.

25. Place a blue 1x1 round plate on the second stud from the left on the front row. This should be on the right stud of the left 1x2 brick with a pin on one side. Repeat this on the right side.

26.1. Find a dark blue 3x2 right curved slope wedge. This has a smooth top, two perpendicular corners, and two angled ones. If you hold it with the two perpendicular corners at the front, the left side should be longer than the right. Place this piece, with the smooth side on top and the longest edge at the front, on the left three columns of the assembly so the front edges are even.

26.2. Repeat the previous step symmetrically on the right side with a dark blue 3x2 left curved slope wedge. There should be two exposed studs between this piece and the previous one.

27. Place a dark blue 1x2 technic brick horizontally on the back row between the previous two pieces.

28.1. Now we will build the screw! First, find a black propeller, hold it so the hole points left and right.

28.2. Find a black 3L axle/pin combo which has a 1L pin on one side and a 2L axle on the other. The pin side is cylindrical and the axle side has an X-shaped cross section. With the axle side on the left, push the pin side into the hole on the propeller from the left. The pin side has friction ridges so it should be hard to turn the propeller if you hold onto the axle.

28.3. Rotate the screw so the axle is at the front and the propeller is at the back. Slide it through the hole in the 1x2 Technic brick on top of the motor assembly, sliding it through from the back. The propeller should touch the 1x2 Technic brick and the axle should extend 1L to the front.

28.4. Slide a dark gray small 8 tooth gear onto the axle, pushing it all the way back until it touches the 1x2 Technic brick.

29.1. Find a tan 2L axle/pin combo which has a 1L pin on one side and a 1L axle on the other. Find the hole on the motor assembly directly below the previous piece. Push the pin side of the 2L axle/pin combo into this hole from the front, with the axle side at the front. The pin side has no friction ridges so it should spin easily in the hole.

29.2. Push a dark gray large 24 tooth gear onto the axle, pushing it all the way back until it touches the motor assembly. The teeth on this gear should mesh with the teeth on the small gear. If you spin the large gear, the small gear should also spin, which in turn should spin the screw!

30. Now place the rest of the submarine in front of you, with the floats at the bottom and the hinge fingers on the left. Rotate the motor assembly so the screw is at the right. Place it, centered vertically, on the right two columns of the submarine. This should be directly to the right of the removable roof.

Open group 10.

31.1. Now we'll build a couple of thrusters! These help the submarine maneuver underwater. Find a dark blue 4x4x2 cylinder with a center bar and holes on two sides. Lay this flat in front of you, with the side holes on the left and right.

31.2. Push a black 2L pin from the left into the left side hole of the previous piece. We'll use this to attach it to the submarine. This pin has friction ridges so it shouldn't spin easily.

31.3. Push a white 1L pin with a hollow stud on one side, with the stud on top, down into the hole in the middle of the center bar of the 4x4 cylinder. The pin side has no friction ridges so it should spin easily.

31.4. Push a lavender bar with three leaves, with the leaves on top, down through the hollow stud of the previous piece. This is the propeller for the thruster. Since we pushed it through a pin without friction ridges, it should spin easily.

31.5. Repeat steps 31.1-31.4 to create another thruster!

31.6. Push the 2L pin on the side of one thruster through the hole on the front side of the submarine which is directly to the right of the windows. Once the thruster is in, you can rotate it however you like to control the submarine! For now, rotate it so the thruster propeller is on the left so it is pushing the submarine forward. Place the other thruster assembly in the same orientation on the back side.

32. Keeping the floats at the bottom, rotate the submarine 180 degrees so the hinge fingers are on the right. Find an orange life preserver. This looks like a 1x1 round plate with a big ring connected to it. Place it, with the ring hanging down, on the left side stud to the right of the windows on the front side of the submarine.

33. Find the transparent 6x6x3 half-sphere canopy with hinge fingers. With the hinge fingers on the left, and the half-sphere pointing down, attach the hinge fingers on the canopy to the hinge fingers on the bottom right of the submersible. They should click into place, and then you should be able to rotate the canopy counter-clockwise to close it! It will click as it moves.

Open group 11. There is a small cardboard box in this group. It contains a rubber band you will use in step 44.

34.1. Now we'll build the submarine's grabber arm! Set the rest of the submarine aside for now. Place a white 1x2 plate with a bar standing up on one side, horizontally with the bar at the back, in front of you.

34.2. We'll start with the claw. Place a blue 1x1 plate with a side stud sticking up on one side, with the side stud at the front, on the right stud of the previous piece.

35. Find a white 1x4 hinge plate. This looks like two 1x2 plates connected at one corner. You can open it all the way out so it looks like a 1x4 plate, or close it all the way so it looks like a 2x2 plate. When it is all the way open, the hinge will stick out like a little half-circle. Open this all the way so it is a 1x4 and place it, horizontally with the half-circle hinge at the front, to the left of the previous piece. It should overhang three studs to the left.

36. Place a white 1x2 plate with a bar standing up on one side, horizontally with the bar at the back, under the leftmost stud of the previous piece so its left stud is exposed.

37. Place a blue 1x1 plate with a side stud sticking up on one side, with the side stud at the front, on the left stud of the previous piece. The two sides of the claw should be mirrored right now.

38. Place a bright light blue 1x2 brick horizontally on the left two studs of the claw. Place another on the right two studs.

39. Place two orange 1x1 bricks with axle holes, with the holes facing the front and back, on the two center studs on either side of the hinge of the hinge plate.

40. Place a white 1x4 hinge plate, centered horizontally and open all the way with the half-circle hinge at the front, on the claw. The hinge should be directly above the hinge on the bottom and both hinges should be able to open and close.

41. Place a pale blue 1x1 plate with a side stud hanging down on one side, with the side stud at the front, to the left of the piece from the previous step. Place another to the right of the piece from the previous step. These two pieces should be directly above the two 1x1 plates with side studs sticking up from step 37 so that there are two side studs on each end of the claw.

42. Place two orange 1x2 grille tiles, standing upright with the grille at the front, on the two pairs of side studs on the front of the claw. These will be the teeth of the claw which can grab onto things!

43. Now, close the claw like you would a book. The hinge shouldn't close all the way and the two grille tiles from the previous step should now be touching. Rotate it so the hinge is at the back with the studs pointing up. There should be two bars pointing up, one each on the left and right sides.

44. Open the cardboard box and take out the white rubber band. Loop one side over the hook on the left side and let the rubber band hang down. Pull the hanging side down under the claw and hook it over the right hook. Keeping the studs on top, rotate the claw so the teeth are at your left.

Open group 12.

45.1. Find a dark blue Technic axle and pin connector. This piece has a central pinhole and two axle holders set at an obtuse angle slightly larger than 90 degrees. The axle holders have a slightly X-shaped cross section and have an X-shaped hole for an axle. Place this piece in front of you with the pinhole pointing up and one axle holder pointing to the front right and the other pointing to the back right.

45.2. Push a black 2L axle into the front hole.

45.3. Repeat steps 45.1-45.2. These assemblies will be used to mount the claw to the submarine and control it.

45.4. Push the axle of one assembly, with the axle at the front and the other axle holder pointing to the right, from the back into the axle hole on the back side of the claw. Rotate the other mounting assembly so the axle points to the back and the other axle holder points to the right. Push the axle, from the front, into the axle hole on the front side of the claw.

46.1. Push a 4L axle from the right into the axle holder on the assembly from the previous step so it extends to the right.

46.2. Find a black 2L axle with a perpendicular axle connector. This piece looks like a 2L axle with a cylinder at one end. The cylinder has an X-shaped hole for an axle. If you pushed an axle through it, it would make a T shape with the rest of the piece. Push this piece, with the cylinder at the right and the X-shaped hole on top, from the right into the back axle holder on the claw. If you squeeze this piece and the 4L axle from the previous step, the claw will open!

47. Find a black axle and pin connector with two axles. This piece looks like two 1L axles connected by a cylinder with a pin hole in the middle of it. It is 3L in length. Push one of the axles of this piece, with the pinhole pointing left and right, from the bottom into the axle hole of the previous piece.

48. Now place the rest of the submarine in front of you, with the canopy at the left. Rotate the claw so the studs point toward you and the teeth of the claw are at the left. The previous piece should be pointing to the back. Push this piece into the axle hole to the left of the windows on the submarine. This is directly above the side studs on the front of the submarine. The 4L axle on the bottom of the claw can be lifted up towards the mounting-axle to open the claw! When you let go, the rubber band will pull it closed on whatever it's holding!

Congratulations! Now the submarine is complete!

Build 1b: Motorize the Submarine!

This build is 37 pieces, and 12 building steps.

Sorting Instructions:



This LEGO set comes in the bag labeled 3. Additional pieces are in the bag labeled 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 may be split across two groups, or made into stacks to make telling the difference easier for the builder.

Bag 3 (2 groups of bricks)

Group 13 contains the pieces for steps 49-54. The white 8x8x2 double inverted curved slope is contained in bag 0 in the FLL kit. This piece has no studs on the curved side.

Group 14 contains the pieces for steps 55-60. To help the builder differentiate between colors, stack the two white 2x2 round plates from step 58 together and leave the orange ones unstacked.

Building Instructions:

Main build: Motorize the Submarine

Open bag 3.

Open group 13. There are two 2x2 round plates that are stuck together in this group, and two more that are loose. The ones stuck together are white and the loose ones are orange

49. Set the rest of the submarine aside for now. Place a white 8x8x2 double inverted curved slope in front of you with the tall sides at the front and back. This will be the base of the submersible trailer that holds the submarine's motor!

50. Place a light blue 2x8 plate horizontally on the second and third rows from the front on the previous piece. Place another symmetrically on the back side.

51. Push two black 2L pins from the left into the front and back holes on the left end of the motor trailer.

52.1. Find a yellow and white small electric hub. This is a 5x7x4 rectangular cuboid with holes on all six sides. Its body is yellow and the very top is white. It looks kind of like a plastic camping cooler. Place this, horizontally and top down, in front of you. The top only has two holes, while the bottom has two columns of three holes. There should be a column of three holes on the left and right sides facing up.

52.2. Push a light green 1L pin with a stud holder, with the stud holder on top, from the top into each of the corner holes on the previous piece.

52.3. Rotate the electric hub back upright so it stands on the four pieces from the previous step. The two upwards facing holes on the top should be at the front. Now place it, centered vertically and horizontally, on the motor trailer. The stud holders will go between the studs of the two 2x8 plates on the trailer. There are two ports on the back side of the hub near the top for accessories to attach.

53.1. Set the motor trailer aside for now. Find a white and blue small angular electric motor. This looks like a 3x3x5 rectangular cuboid with a disc on one side and a cord coming out of another side. Hold this so the cord is at the bottom and the disc is on the left. When power is applied, the motor will spin the disc, which has a central axle hole and four pin holes around it.

53.2. Push a yellow 3L axle, from the left, into the central axle hole on the disc so it extends 2L to the left.

53.3. Push a black small 12 tooth double bevel gear from the left onto the previous piece until it touches the disc, Push another on until it touches the first.

53.4. Push two blue 3L pins, with the stops on the right, from the left into the two holes below the disc on the left side of the motor so they extend 2L to the left.

53.5. Push a white 1x4 Technic brick vertically from the left over the two pieces from the previous step, pushing it all the way until it touches the motor. The holes in this piece should attach to the pins from the previous step.

54.1. Place the rest of the motor trailer in front of you, with the two pins on the left side. Keeping the disc and gears on the left, push the two bottom holes on the motor from the right onto the two pins on the left side of the motor trailer.

54.2. Now take the cable from the bottom of the motor and attach it to the right cable port on the back side of the hub.

Open group 14.

55. Keeping the gears and the axle on the left side, rotate the motor trailer 180 degrees so the studs point down. Place a light gray 1x10 plate, horizontally with the studs at the bottom, onto the front row of anti-stud so its right edge is even with the right edge of the trailer. The left stud should attach to the anti-stud of the 1x4 Technic brick from step 53.5. Place another on the back row of anti-stud.

56. Place a light gray 2x3 inverted slope brick, centered vertically with the sloped side on the right and the studs pointing down, on the motor trailer so the right edges are even.

57.1. Place a Technic 4x4 brick with an open center, centered vertically with the studs pointing down and the sides with three holes at the front and back, to the left of the previous piece.

57.2. Push a black 2L pin from the front into the leftmost and rightmost holes on the front of the previous piece. Repeat this symmetrically on the back side.

58.1. Now we will build two small floats that are attached to the bottom of the motor trailer, just like we did with the submarine. Place a white 2x2 round plate with a rounded bottom in front of you.

58.2. Place an orange 2x2 round brick with a hole through the side, with the hole at the front, on the previous piece.

58.3. Place an orange 2x2 round plate on the previous piece. Remember that the orange 2x2 round plates are the ones that are loose in this group.

58.4. Place a white 2x2 round plate on the previous piece.

58.5. Place an orange 2x2 round brick with a hole through the side, with the hole at the front, on the previous piece. Make sure the hole on this piece and the one from step 58.2 are in the same orientation!

58.6. Place an orange 2x2 dome brick on the previous piece.

58.7. Repeat steps 58.1-58.6 to make a second float.

58.8. Keeping the holes at the front, rotate one float so the dome is on the left. Push the holes from the front onto the two pins on the front side of the motor trailer. Repeat this on the back side of the motor trailer with the other float. Both domes should be on the left.

59. Now place the submarine back in front of you, with the canopy on the left. Rotate the motor trailer so the studs are on top and the gears are on the left. Push the two pins on the bottom of the left side of the motor trailer into the corresponding holes on the bottom of the right side of the submarine to connect the two.

60.1. Find an electric color sensor. This looks like a black and white 3x3x3 cuboid with a cable on one side and a window on the opposite side. Rotate it so the cable is on the right and so there are two pinholes on the top. There should also be two pinholes on the right side.

60.2. Push two black 2L pins from the right, one into the top and one into the bottom hole on the right side of the previous piece.

60.3. Keeping the color sensor in this same orientation, push the top pin into the top hole of the two pinholes above the half-sphere canopy on the submarine. The bottom pin goes into the middle hole directly above the canopy.

60.4. Attach the cable from the color sensor to the left cable port on the back side of the electric hub.

## Build 2: Three Undersea Scenes

This build is 92 pieces, and 40 building steps.

### Sorting Instructions:

This LEGO set comes in the bags labeled 4, 5, and 6. Additional pieces are in the bag labeled 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 may be split across two groups, or made into stacks to make telling the difference easier for the builder.

#### Bag 4 (6 groups of bricks)

##### Main Build 1: Sandy Ocean Floor

Group 1 contains shark body, shark jaw, and red fish.

Group 2 contains eleven orange 1x1 round plates with a flower pattern.

Group 3 contains the pieces for steps 1-4, but not including any orange 1x1 round plates with a flower pattern. Make a stack of 1x1 round plates with a flower pattern in this order, starting from the bottom with the studs facing up: white, pale blue, pink, light green.

Group 4 contains the pieces for steps 5-12. Make a stack of 1x1 round plates with a flower pattern in this order, starting from the bottom with the studs facing up: pink, pale blue, salmon, white. Also make a stack of 1x1 round bricks with a purple one on top of a lavender one.

#### Bag 5 (3 groups of bricks)

##### Sub Build: Angler fish

Group 5 contains the pieces for steps 1-10 to build the angler fish.

##### Main Build 2: Sunken Treasure

Group 6 contains the pieces for steps 1-8.

Group 7 contains the pieces for steps 9-10.

#### Bag 6 (3 groups of bricks)

##### Main Build 3: Bottom of the Ocean

Group 8 contains the pieces for steps 1-4.

Group 9 contains the pieces for steps 5-6, as well as one black whip with a bar and a bar hole from step 7. The black and dark gray whips are both contained in bag 0.

Group 10 contains the pieces for steps 7-8.

### Open group 1

#### Sub Build 1: Sea Creatures

This build comes with a shark and a small fish. To assemble the shark, find its jaw and its body. Hold the body with the tail on the left and the flat side on the bottom. The dorsal fin should stick straight up and the two pectoral fins should stick out on the front and back. Clip the jaw onto the right side of the shark's body, with the pointed nose at the right and the teeth at the bottom. You should be able to open and close the shark's mouth. If you think he's hungry, you can stick the little red fish in his mouth!

Open group 2 and group 3. Group 2 contains eleven orange 1x1 round plates with a flower pattern, you'll use this group throughout this build. From now on, I'll call these pieces 1x1 flower plates. Group 3 has a stack of four of these which are all different colors. They are, from top to bottom with the studs facing up, light green, pink, pale blue, and white. This is the order you will use them in.

#### Main Build 1: Sandy Ocean Floor

1.1. Place a tan 6x6 round plate in front of you.

1.2. Place a dark green 2x2 brick on the right two studs on the second and third rows from the back of the previous piece. Its back right corner should be even with the edge of the round plate.

2.1. Place an orange 1x1 flower plate in front of the right column of the 2x2 brick from the previous step. Place another to the left of the front row of the 2x2 brick. Skip one stud to the left and place a third orange flower plate. There should be one free stud to the left of this piece.

2.2. Place a green 1x1 flower plate on the third stud from the left on the second row from the back of the 8x8 round plate. This is behind and between the last pieces from the previous step.

3.1. Place a pink 1x1 flower plate on the leftmost orange flower plate.

3.2. Place a pale blue 1x1 flower plate on the rightmost orange flower plate.

4.1. Now we'll build a frond of coral! Find a teal coral frond. This looks kind of like a letter Y with a number of extra arms poking off of it. If you lay it flat on the table, it will have three studs facing up and three facing down. There is also one stud on one arm of the Y shape. Rotate the coral frond so that this stud points up and the three studs face you. The arm with the top stud should be on the right. Push the bar on the bottom part of the Y through the hollow stud of the green 1x1 flower plate.

4.2. Place a light green 1x1 round plate with three leaves, with the stud facing you and the leaves pointing to the left, on the leftmost front-facing stud on the coral.

4.3. Place a white 1x1 flower plate on the previous piece.

4.4. Push a pink flower with a bar sticking out down into the hollow stud on top of the coral.

Open group 4. This group has a stack of four 1x1 flower plates which are all different colors. They are, from top to bottom with the studs facing up, white, red, pale blue, and pink. There is also a stack of two 1x1 round bricks, a purple one on top of a lavender one. For both stacks, this is the order you will use them in.

5.1. Place a purple 1x1 round brick on the stud in front of the left column of the 2x2 brick.

5.2. Push a white flower with a bar sticking out down into the hollow stud on top of the previous piece.

6.1. Place a yellow 2x2 sphere on the front right stud of the 2x2 brick.

6.2. Place a white 1x1 flower plate on the previous piece.

7.1. Place an orange 1x1 flower plate on the second stud from the left on the fifth row from the front on the 8x8 round plate. There should be three free studs in front of it.

7.2. Skip one stud to the right of the previous piece and place a lavender 1x1 round brick there. There should be one free stud between the two pieces.

8. Place a yellow 2x2 round brick in front of the last orange 1x1 flower plate so there is one free stud to the left of its back row.

9.1. Place three orange 1x1 flower plates on the second row from the front, one each on the right most, the third from the right, and the second from the left studs in this row.

9.2. Place two orange 1x1 flower plates on the third row from the front, one each on the second and the fourth studs from the right.

9.3. Place two orange 1x1 flower plates on the fourth row from the front, one each on the second and the fourth from the right studs. When this is done, there should be flower plates making diagonal lines on the second, third, and fourth rows of the round plate.

10.1. Place a salmon 1x1 flower plate on the front right orange flower plate.

10.2. Place a pale blue 1x1 flower plate on the front left orange flower plate.

10.3. Place a pink 1x1 flower plate on the second orange flower plate from the right on the third row of orange flower plates. There are two 1x1 round bricks behind this piece, one on either side of it.

11. Push a light gray 3L axle down through the center axle hole of the 2x2 round brick so it sticks up 2L.

12. Push a teal cylindrical brush down over this axle. Now the first underwater scene is complete!

Open Bag 5.

Open group 5

Sub build 2: Angler fish

1.1. Place a black 2x2 round plate in front of you.

1.2. Place a black 1x2 plate vertically on the right column of the previous piece.

2. Find two white 1x2 slopes with a cut out. These look like a 1x1 plate with a 1x1 slope tile on one side. Place one, with the slope at the front, on the front left stud of the 2x2 round plate so it overhangs by one stud. Place the other symmetrically on the back. These will be the angler fish's fins.

3. Place a black 2x2 round plate, centered vertically and even with the left and right edges, on the angler fish.

4.1. Place a black 1x2 plate vertically on the left column of the previous piece.

4.2. Place a black 1x2 plate with a bar on one long side, with the bar on the right side, to the right of the previous piece.

5. Place a black 1x2 plate with rounded corners vertically on the previous piece.

6. Place a black 1x2 plate vertically on the previous piece.

7. Place two glow in the dark 1x1 round tiles on the previous piece. These will be the angler fish's eyes, which glow in the dark!

8.1. Now we'll build the fish's jaw, with its big jagged teeth. Start by finding a black 1x2 hinge base. This looks like a 1x2 brick, but with no studs on top. Instead, the two short sides have rounded cutouts which a hinge plate can clip into. One of the long sides is tall, and the other is short. Place this piece vertically and centered vertically, with the tall side on the right, on the left column of the angler fish.

8.2. Now find a black 1x2 hinge plate. This looks like a thin 1x2 plate that has a thin cylinder on the bottom. Push this vertically, with the cylinder on the bottom, down into the two cut outs on the hinge base until it clicks into place. If you do this with the studs pointing up, it should freely rotate 90 degrees counterclockwise, but it should not be able to rotate clockwise past the vertical position.

8.3. Place a white 1x2 plate with three teeth on one side, vertically with the teeth on the right, on the previous piece. These are the long teeth on the angler fish's jaw!

8.4. The angler fish has a noticeable underbite and its chin sticks out a ways past the rest of its face. Make its chin by placing a black 1x2 slope tile vertically, with the thick side at the right, on the previous piece. Now, experiment with opening and closing the jaw by moving the hinge plate!

9.1. Now we will rotate the angler fish 90 degrees counterclockwise so the jaw is on the left and the fins are at the front and back. Place a white 1x2 slope with a cut out in front of you with the slope on the right.

9.2. Place a white 1x1 brick on the previous piece. This assembly is the fish's tail.

9.3. Rotate the tail 90 degrees counterclockwise so the stud is on the left and the slope is on top. Attach the stud to the center anti-stud of the 2x2 round plate on the right side of the angler fish.

10.1. Now we will build the bright lure that the angler fish uses to attract its prey! Find a black 3L bar with a clip on one end and a hollow stud on the other. Place this in front of you with the stud pointing up on the left, and the clip on the right.

10.2. Find a transparent green short bar with a bulb cover. This piece has a very short bar on one side, and a domed cylinder on the other. With the bar on the bottom, push this piece down through the hollow stud of the previous piece. This is the lure.

10.3. Find a black 1L bar with a clip on one side. With the clip on top and the flat sides at the front and back, attach the bar of this piece to the clip of the 3L bar with a clip and a stud from step 10.1. This will attach the lure to the fish.

10.4. Now rotate the lure 180 degrees towards you so the previous piece and the lure are at the bottom. Attach the clip of the previous piece to the bar on the top of the angler fish. The transparent green lure should hang above and in front of the angler fish's eyes.

Open group 6

## Main Build 2: Sunken Treasure

1.1. Place a dark tan 4x6 plate vertically in front of you.

1.2. Place a dark gray 2x2 brick on the back two rows of the previous piece, with the right edges even.

2.1. Place a dark green 1x1 round plate with three leaves, with the leaves at the back, on the back right stud of the previous piece.

2.2. Place a pink 1x1 flower plate on the previous piece.

3. Place a dark gray 1x1 slope tile, with the thick side at the back, on the 2x2 brick in front of the previous two pieces so its right edge is even with the front and right edges of the 2x2 brick.

4. Place a brown 1x4 arch brick horizontally on the third stud from the front on the right column of the 4x6 plate. Place it so it overhangs three studs to the right.

5. Place a dark tan 4x6 plate vertically on the anti-stud of the previous piece. Place the anti-stud of the arch on the third stud from the back on the left column of the 4x6 plate so the plate extends three studs to the right, and two studs behind the arch.

6. Place a pink 1x1 brick on the second stud from the back on the second column from the right on the previous piece. It should be two studs to the right and one stud behind the 1x4 arch brick.

7.1. Place a green 1x1 round plate with a single plant stem on the second stud from the front on the rightmost column of the right 4x6 plate. This piece has one large stem which ends in a loop, and a very small leaf on one side.

7.2. Place a transparent 1x1 round plate with a hollow stud in front of the right column of the 1x4 arch brick.

8. Find a dark green seaweed frond. This has four individual fronds pointing upwards, and a short bar at the bottom. Push the short bar of this piece, with the fronds pointing up, down into the hollow stud of the previous piece.

Open group 7

9.1. Assemble a treasure chest by placing the base horizontally in front of you with the low wall at the back.

9.2. Find the lid to the treasure chest. This is shaped like a hollow half cylinder. It has a point that sticks out from inside the center on one side. This is the latch that holds it shut. Attach the lid, with the hollow side down and the latch at the front, to the rest of the treasure chest.

9.3. Make some gold by making three identical stacks of two yellow 1x1 round plates and put these into the treasure chest.

9.4. Place the chest vertically and centered vertically, with the hinge on the right, on the left two columns of the left 4x6 plate.

10. Complete the scene by resting a brown ship's steering wheel between the two plants on the right 4x6 plate.

Open bag 6

Open group 8

Main Build 3: Bottom of the Ocean

1.1. Place a dark gray 4x8 plate horizontally in front of you.

1.2. Place a black 2x2 slope brick, with the slope on the left side, in the front left corner of the previous piece.

2. Place a black 2x2 corner brick, with the free stud at the back left so it is oriented like a braille letter J, behind the previous piece so its left stud is in line with the studs of the previous piece.

3. Place a dark gray 1x1 slope tile, with the thick side at the left, on the front stud of the 2x2 slope brick. Place another, with the thick side at the back, on the fifth stud from the right on the front row of the 4x8 plate. There should be one stud between this piece and the 2x2 slope.

4.1. Place a dark gray 1x1 brick to the right of the previous piece.

4.2. Place a dark gray 1x2 slope brick, with the stud at the back, behind the previous piece.

Open group 9

5.1. Place a light gray 1x2 slope brick, with the stud on the back, in front of and to the right of the previous piece so the front edge is even with the front of the 4x8 plate. Its back stud should be to the right of the slope of the previous piece.

5.2. Place a light gray 1x1 cone brick two studs behind the previous piece so it's even with the back of the 4x8 plate.

6.1. Place a light gray 1x1 cone brick on the second stud from the back on the right column of the 4x8 plate.

6.2. Place a light gray 1x2 slope brick, with the stud on the back, on the front row of the 2x2 corner brick from step 2.

7.1. Now we will make two deep sea flowers. Find a black whip with a bar and a bar hole. This is a long wavy cylinder like a rope which has a thick hollow cylinder on one end and a thin solid cylinder on the other. The hollow cylinder is a bar holder. Push the thin solid end down through the top of the hollow stud on the rightmost 1x1 cone brick. Rotate it so the thick bar holder points to the right.

Open group 10.

7.2. Push a white flower with a bar sticking out, from the right, into the hollow cylinder on the previous piece.

7.3. Place a dark gray whip with a bar and a bar hole, with the thick bar holder facing forwards, into the hollow stud of the cone on the third stud from the right on the back row of the 4x8 plate.

7.4. Place a white flower into this one like you did with the first.

8.1. Place a light blue 2x2 piece with four flower petals and an axle hole in front of you with the studs on top.

8.2. Find an olive green elephant trunk. This is a long wavy cylinder which has a short bar on one side and a hollow stud on the other end. Push the short bar down through the center hole between the studs of the previous piece. The trunk should extend to the left.

8.3. Attach the stud at the bottom of a black ship anchor to the stud of the previous piece. This is the stud between the two blades of the anchor and it is the only one on this side of the anchor. The ship anchor should point to the right.

8.4. Push the short bar of another olive green elephant trunk down through the hollow stud of the previous piece. Rotate this trunk so it extends to the right. When viewed from the front it should look like a sideways letter U.



8.5. Rotate this piece so the arms of the anchor are at the bottom and the 2x2 with flower petals is at the front. The anchor should look kind of like an upside down letter T. Set it on the left half of the ocean scene. It will not connect to any studs on the base of the scene. The arms should rest behind the two 1x1 slope tiles and they should hold it up. Since it is resting on slopes, it will tilt away from you.

Congratulations! Now this build is complete!

Thank you so much for building this set!

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