21355 The Evolution of STEM
Adapted by Alastair Guild and tested by Natalie Charbonneau.

Open a brick-built book on the evolution of STEM (science, technology, engineering and math) with this LEGO® Ideas collectible display model for adults (21355). An inspiring science gift for women, men and history-lovers, the set features a buildable base in the shape of an open book topped by mini builds that represent historic innovations. Build an early car and a home computer, the NASA Voyager Probe with the Golden Record on board for any extraterrestrial life form that may find it, and much more. Turn the dial to make a 3D replica of a carbon atom float upwards and a DNA strand rotate. The set includes minifigures of 3 famous scientists: Marie Curie (née Skłodowska), the first person ever to win 2 Nobel prizes; Sir Isaac Newton, famous for his law of universal gravitation; and pioneering agricultural scientist George Washington Carver. Contains 879 pieces.

Science gift for women, men and history-lovers – Celebrate groundbreaking innovations in science, technology, engineering and math with this collectible Lego Ideas The Evolution of STEM display model.

LEGO minifigures of 3 famous scientists – The “mother of modern physics” Marie Curie (née Skłodowska), Sir Isaac Newton, leader of the Scientific Revolution, and agricultural science pioneer George Washington Carver.

Collectible display model for adults – A buildable base shaped like an open book is topped with many mini builds including Newton’s apple tree, Carver’s plants bed, a space shuttle and a robotic arm.

Fun features – Turn the dial to make the 3D replica of a carbon atom float upwards and the DNA strand rotate, and look out for a Morse code message, NASA Voyager Probe with the Golden Record, and more.

Gift for science-lovers and history buffs – Treat yourself or gift this LEGO® model kit to other adults with a passion for STEM subjects or history.

Dimensions – This 879-piece set measures over 27 centimeters (10.5 inches) high, 23 centimeters (9 inches) wide and 19 centimeters (7.5 inches) deep.

The front of the box shows the completed model, which consists of a book laying open with iconic symbols from the history of STEM bursting from its pages. The symbols and icons include a laboratory bench complete with microscope, blackboard and computer; a large brick-built carbon atom referencing Marie Curie’s Nobel Prize-winning work in chemistry and physics; an apple tree referencing Newton’s discovery of the universal law of gravitation; a small garden referencing the work of George Washington Carver; a microscale New York City; and a tall, spiraling strand of DNA which supports a bee, a space shuttle, and a model of the NASA Voyager Probe. In front of the bench stands a minifigure of Marie Curie, who is holding a flask of green fluid and a 1x1 tile printed with the symbol for radium, an element which she discovered. In front of the book stand minifigures of Sir Isaac Newton holding an apple and George Washington Carver equipped with a 1x1 tile with a printed peanut. There is also a representation of the Ford Model T, one of the first commercially available cars.

The back of the box shows how the minifigures and side builds can all fit on top of the display base. The minifigures of Marie Curie and Sir Isaac Newton are both shown to have alternative expressions of surprise, perhaps so the builder can display them in their ‘eureka’ moments! There are three smaller images below the main picture which show some of the set’s features and functions: a knob at the rear of the build can be turned to make the DNA spin and the bee, space shuttle and Voyager probe fly around; and Newton can be posed beneath the apple tree. The final picture is a wireframe diagram of the set which announces the dimensions of the set – it is 23 centimeters (9 inches) wide and stands 27 centimeters (10.5 inches) tall.

The top of the box shows the minifigures. Sir Isaac Newton is depicted as a smiling man holding an apple. He has long grey hair, a fancy shirt covered by a green jacket, and white trousers with black boots. George Washington Carver has a grey moustache and wears a brown cap, a brown jacket with a flower on the lapel, and dark brown trousers. He is holding a watering can and a tile depicting

peanuts. Marie Curie has a determined smile and dark tan hair tied up in a bun and wears a black dress. She is equipped with a flask of bright green fluid and a tile displaying the chemical symbol for the element radium.

The build is 879 pieces in total across 7 bags and is aimed at ages 18+.

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.
- 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.
- That one/ppp: previously placed piece.
- Plate: piece with studs.
- Tile: smooth piece without studs (unless otherwise specified)
- A jumper plate is a 1x2 plate with a single stud on top, or a 1x3 plate with only two studs on top.
- "Anti-stud" is a term for the portion of a LEGO piece which accepts studs, like the bottom of a plate or brick.
- Symmetrically: a mirror image. Example: If you place a 2x1 brick with Technic connector on the front wall at the right, connector to the front, and then place another such piece symmetrically on the back wall, at the right, the technic connector of the second piece should point to the back, since it will be placed symmetrically.
- Centered-vertically: even amount of space in front of and behind piece
- Centered-horizontally: even amount of space left and right of 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).

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 are always online at [https://www.lego.com/en-us/service/buildinginstructions/21355]: 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.

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.

Bag 1 (5 groups of bricks)
Group 1 – George Washington Carver minifigure, steps 1-9
Group 2 – steps 10-13
Group 3 – steps 14-16
Group 3 – steps 17-24

Bag 2 (6 groups of bricks)
Group 1A – steps 25-33 except step 27
Group 1B – step 27 (16 1x1 tiles of various colors)
Group 2 – steps 34-35
Group 3 – steps 36-44
Group 4 – steps 45-48

Group 5 – steps 49-51

Bag 3 (6 groups of bricks)
Group 1 – steps 52-58
Group 2A – yellow pieces for steps 59-68
Group 2B – coral pieces for steps 59-68
Group 2C – teal pieces for steps 59-68
Group 2D – reddish orange pieces for steps 59-68
Group 2E – all other parts for steps 59-68

Bag 4 (7 groups of bricks)
Group 1 – Sir Isaac Newton minifigure, steps 69-72, and black parts for step 73
Group 2 – bright green parts for step 73 and parts for steps 75-77 (connect the light grey 1x2 plate to the left two studs of the dark grey 1x6 brick to differentiate it from the black 1x2 plate)
Group 3A – steps 78-89 except one dark grey 1x3 plate, one trans-clear 1x2 left wedge tile, one dark pink 1x2 tile with 'Guble Bubble' print, and one bright green 1x1 tile with DNA strand print
Group 3B – one trans-clear 1x2 left wedge tile, one dark pink 1x2 tile with 'Guble Bubble' print, and one bright green 1x1 tile with DNA strand print from steps 78-88
Group 4 – steps 90-91 (stack the trans-clear 1x2 plate on top of the red 1x2 plate to assist in differentiating the colors)
Group 5 – steps 92-93
Group 6 – steps 94-96

Bag 5 (7 groups of bricks)
Group 1 – steps 97-99
Group 2 – steps 100-107
Group 3 – steps 108-112
Group 4 – steps 113-120 plus a brown short stem with bar and 3 stems from step 121
Group 5 – steps 121-126
Group 6A – steps 127-136
Group 6B – blue and dark azure pieces from steps 130, 132, 133 and 135

Bag 6 (5 groups of bricks)
Group 1 – Madame Curie minifigure, steps 137-139
Group 2 – steps 140-148
Group 3 – steps 149-152 plus a purple 1x2 tile from step 153
Group 4 – steps 153-155
Group 5 – steps 156-159

Bag 7 (5 groups of bricks)
Group 1 – steps 160-162
Group 2 – steps 163-170
Group 3 – steps 171-175
Group 4 – steps 176-186
Group 5 – steps 187-195

The print instructions begin with several pages of preamble about the original model which inspired the set, the importance of STEM, and a note from the Lego Ideas design team.

"Meet the fan designer: Daniel Bradley, a UK-based trainee accountant, won both the jury's and the fan's votes in the 2023 'Celebrate the Wonder of STEM' Lego Ideas challenge. Dan loves to travel with his partner and build Lego sets with the help of his cat Zeus. (Perhaps our first official CFOL – Cat Fan of Lego?) With his 'Knowledge is Power' entry, Dan captured a childlike curiosity about science that he hopes will inspire builders and STEM enthusiasts of all ages: "As a child, I had an encyclopedia for kids that I was just obsessed with. I wanted to convey the curiosity it sparked in me by having this open book with all the different fields of STEM coming alive, sprouting from the pages. The younger me would have loved to build this set – probably with my real encyclopedia next to me, reading up on all the themes! I wanted to incorporate as many different areas of STEM into one build as possible while getting the proportions right. I'm very happy with the details I got into the submission

and can't wait to see how the final result is received. Thanks to all who supported the idea, and to the Lego Ideas team for this incredible opportunity!""

"Driven by curiosity: STEM (science, technology, engineering and mathematics) represents the core disciplines that drive modern innovation and problem-solving. These fields are deeply interconnected and help us understand and shape the world around us. We can use them to tackle challenges, think critically and innovate across various disciplines. Each discipline enhances and informs the others. For example, engineering relies on specific scientific principles, technology harnesses both engineering and mathematics, and mathematics is essential for advancements and discoveries in all STEM fields."

"Inspiring thinkers, builders and innovators: When we create with Lego bricks and models, we use STEM principles. And, when we build, bricks can help us explore abstract ideas through hands-on learning and turn them into tangible and accessible concepts. Each mini build in this model represents a groundbreaking STEM achievement. From the invention of the wheel to mapping of rare species, building computers to sending rovers to Mars, STEM fields have always built on the achievements of past explorers and pioneers. Their curiosity, creativity and collective pursuit of knowledge continues to inspire and propel us toward new discoveries and technological advancements. Let Sir Isaac Newton, Marie Curie and George Washington Carver be your guides on your building tour through STEM history."

"From the Lego Ideas Design Team: Daniel's winning entry of our 'Celebrate the Wonders of STEM' challenge nailed the brief with his fantastic 'explosion' of STEM, bringing it to life and having it leap off the pages, like it cannot be contained simply within the pages of a book. Throughout the model there are nods to engineering achievements and scientific theories that we hope will trigger your own voyages of discovery. STEM hits every aspect of our lives, Lego building included – so by building the individual pieces that make up the model you are witnessing elements of STEM at work! Beneath all the hard facts, STEM embodies a very human story of discovery, adversity and accomplishments, and people fueled by passion and a desire to better the world. We worked with Daniel to contextualize elements of the model with real-world examples and highlight a few historical STEM heroes as minifigures. Ewe are telling three people's stories in this model, and we hope they will inspire you to explore other amazing stories of STEM."

Let's start building!

Open the first bag, which contains the parts to build the core of the base of the display. Retrieve the first group of parts. The set begins with the George Washington Carver minifigure. Take the dark brown minifigure legs and connect them to the reddish-brown minifigure torso from below with the feet and arms facing the same direction. Then, place the head on to the neck at the top of the torso. Finally, place the dark brown cap on top of the head with the brim facing forward.

The minifigure needs some accessories: first, find the transparent clear 1x1 round tile with peanut print and place it on the minifigure's left hand. Then, create a watering can: take a flat silver minifigure mug and a light grey 1L bar with angled hollow stud. Orient the mug upside down and connect the stud of the 1L bar to the anti-stud. Twist the bar in place so that the bar and the mug's handle are on opposite sides. The watering can is complete – attach it to the minifigure's right hand.

The minifigure of George Washington Carver has dark brown skin and wears a reddish-brown jacket over a grey waistcoat and a white shirt. On his lapel is a dark pink flower, stylized to look like a Lego flower stud. His face shows age, with grey eyebrows and a moustache covering his mouth. On top of his head perches a dark brown cap.

The print instructions contain the following information: 'George Washington Carver (c. 1864-1943), the world-famous chemist, agriculturist and humanitarian and an American National Inventors Hall of Fame inductee, lived by the words "It is simply service that measures success."'

1. Take the dark red 2x4 plate and the tan 1x2 Technic brick with pin hole and orient both pieces horizontally. Place the brick on the middle two studs of the back row of the plate.

2. Locate the two dark red 2x2 corner plates. Orient the first so the studs form the Braille letter H and connect its front right stud to the left of the Technic brick. Then, orient the second corner plate so the studs form the Braille letter J and connect the front left stud to the right of the Technic brick.

3. Find the two black 3x3 corner plates. Orient the first so the corner lies in the back right and connect the back right stud under the front stud of the overhang of the left 2x2 corner plate from the previous step. Connect the second corner plate symmetrically to the right side of the model.

4. Take a black 1x6 Technic brick and place it horizontally across the front row of the assembly. The frontmost studs of the corner plates placed in the last step should protrude in front of the Technic brick.

5. Collect the dark grey 5.5L Technic axle and the black wheel with an axle hole. Hold the wheel so that the end with recession faces right, then take the axle and hold it so the stop ring lies to the left. Insert the axle into the axle hole of the wheel from the right so that the stop ring prevents the wheel sliding too far along the axle. Next, reorient the part so the axle points toward you and slide the axle through the Technic bricks from the back of the model. The wheel should lie at the rear of the build and the axle should stick out in front.

6. Find a black 12-tooth gear with double bevel and a white half-bushing. Slide the gear onto the axle at the front of the assembly, followed by the bushing.

7. Retrieve two black 1x12 plates and two tan 1x4 bricks. Use them to make two of the following part: orient a 1x12 plate horizontally, then connect a 1x4 brick horizontally to the leftmost three studs so it overhangs to the left by one stud. Take the main assembly and rotate it 90 degrees to the left so that the wheel lies to the left. Connect the left ends of the parts to the protruding studs on the right side of the assembly in front of and behind the gear placed previously.

8. Next, we will create a Technic subassembly that will drive a function to be completed later in the build process. Gather the following parts: two black 1x6 Technic bricks, a black 12-tooth gear with double bevel, one white 2L round Technic pin connector, two white Technic half-bushings, one yellow 5L Technic axle, and two yellow Technic engine crankshafts. (The latter parts feel like a 2L axle with a 2L thin liftarm at one end.) Use the pieces to create the subassembly as follows:
8.1. Orient a crankshaft horizontally with the thin liftarm upright and the axle pointing right at the bottom. Then insert the 5L axle into the axle hole of the crankshaft from the left. The axle of the crankshaft should sit below the 5L axle.
8.2. Take the second crankshaft and orient it with the thin liftarm vertical and the axle pointing right and above the axle hole. Insert the axle of the first crankshaft into the axle hole of the second so that the axle of the second crankshaft is in line with the 5L axle. The result should be a shaft that proceeds straight from left to right, dips toward the end, then returns to the same level.
8.3. Find the 2L pin connector and slide it onto the 5L axle so it sits beside the crankshaft. Then, obtain a 1x6 Technic brick, orient it vertically, and insert the left end of the assembly into the middle hole of the brick.
8.4. Slide the gear onto the axle from the left, then do similarly with a half-bushing.
8.5. Take the second 1x6 Technic brick and orient it vertically. Slip the axle at the right end of the assembly into the middle hole of the brick, then secure it in place by placing a half-bushing on the protruding axle.
8.6. Add the subassembly to the main model by connecting it to the right of the tan 1x4 bricks. The black plates should protrude to the right of the subassembly by three studs.

9. Collect two tan 1x2 plates, four dark red 2x2 plates, and two teal 1x2 plates with rail. Locate the 6x6 square created by the two 1x6 Technic bricks and two 1x4 bricks which contains the gears. Place the first of the 2x2 plates on the back left corner of the square – the front right stud of the plate should overhang into the square. Place the remaining three 2x2 plates symmetrically on the other corners. Next, orient a 1x2 plate with rail horizontally with the rail in front and connect it to the two studs between the rear pair of 2x2 plates. Connect the second rail plate symmetrically at the front of the build. Finally, place the tan 1x2 plates vertically in the gaps between the left and right pairs of 2x2 plates.

10. Retrieve the second group of pieces. Find two white 1x2 bricks, two black 1x2 plates, two tan 1x4 bricks and two teal 2x2 tiles with studs on one edge. Locate the 1x4 of studs in front of the crankshaft and place one of the 1x2 bricks horizontally on the left two studs, then place the second 1x2 brick symmetrically behind the crankshaft. Next, take a 1x4 brick and place it horizontally on the three studs at the front right end of the model – the brick should overhang one stud to the right. Place the second 1x4 brick similarly at the rear of the assembly. Finally, use the remaining pieces to make two of the following part: take a 2x2 tile with studs and orient it with the studs in front. Then, connect a 1x2 plate horizontally under the front row of the tile. Place the first part to the right of the front 1x2 brick placed earlier, then put the second part symmetrically at the back.

11. Take two black 3x3 corner plates. Orient one with the corner in the back right and connect its left stud under the overhang of the front 1x4 brick placed in the previous step. Add the second piece symmetrically at the rear.

12. Gather four white 2x2 bricks and eight tan 1x2 curved slopes. (The curved slopes are relatively new pieces, so don't worry if they feel unusual to you.) Use the pieces to make four identical parts:
12.1. Take a curved slope and hold it horizontal with the cutout to the left. Connect the cutout to the back right stud of a 2x2 brick.
12.2. Place a second curved slope in front of the first so the curves line up.
12.3. Repeat the above steps to obtain three more parts for a total of four. Orient two of the parts so the curved slopes face you, then connect the back row of one on top of the rear 1x2 brick to the left of the crankshaft. Place the second part to the right of the crankshaft so there is a two-wide gap between the parts. Place the remaining parts symmetrically at the front of the model.

13. The remaining parts in the group are two teal 1x1 bricks, two medium nougat 1x2 bricks with 2x2 side studs, and two tan modified 2x2 plates with 1x2 side studs. Orient a modified brick with the side studs facing you and connect a modified plate to the side studs so the side studs of the plate face up. Repeat this action to obtain a second part. To place the first part, locate the horizontal 1x2 of studs between the front curved slope assemblies placed previously and connect a part to the studs. Place the second part symmetrically at the rear of the build. Then, navigate to the right end of the model and place the 1x1 bricks to the right of the 1x4 bricks.

14. Grab the third group of pieces. We will use most of them to construct a subassembly. Separate out a medium nougat 2x8 Technic plate, a medium nougat 1x6 tile, two tan 1x2 tiles, a tan 2x2 round tile with pin hole, a tan 2L Technic axle connector, a tan 1x5 round plate, and a tan 4L axle with center stop. Use them to build the subassembly as follows:
14.1. Orient the 2x8 plate horizontally and place the 2x2 round tile so it is horizontally centered, covering the fourth and fifth columns of the plate.
14.2. Take a 1x2 tile and add it vertically to the left of the round tile, then take the other and place it symmetrically on the right of the round tile.
14.3. Next, make a sub-part as follows:
14.3.1. Orient the 1x6 tile and 1x5 round plate upside down and horizontal. Note that the studs of the round plate are hollow and can therefore connect to the tubes on the underside of the tile. Connect the studs to the tubes – the round plate should be centered on the tile, leaving half a stud of space between each end of the round plate and the ends of the tile.
14.3.2. Take the 4L axle and hold it upright with the stop ring near the top and insert the bottom of the axle into the hole in the center of the round plate.
14.3.3. Add the sub-part to the subassembly by inserting the axle through the center of the 2x8 plate from below – the axle will pass through the middle of the round tile.
14.4. To complete the subassembly, take the axle connector and place it vertically on top of the axle.
14.5. Reorient the part to be vertical. Make sure that the part under the 2x8 plate is parallel to the 2x8 plate, then add the part to the main assembly by slotting it between the curved slopes and on top of the crankshaft. Together with the crankshaft, the subassembly forms a function – turning a gear will raise and lower the axle connector. The tile and round plate locked under the 2x8 plate ensure that the visible part doesn't spin when in motion.

15. Collect a dark red 2x4 plate, a dark red 2x2 plate, and two dark red 2x2 corner plates. Use them to create a part:
15.1. Orient the 2x4 plate vertically, then place the 2x2 plate in the middle.

15.2. Take a corner plate and orient it so its studs form the Braille letter F, then connect its front stud to the back left stud of the 2x4 plate. Place the other corner plate symmetrically at the front of the part. The corner plates will overhang the ends of the part by one stud.
15.3. Slot the part into the gap between the plates at the right end of the build. The left studs of the corner plates should connect to the innermost studs of the main assembly.

16. Take the two dark red 2x6 plates and place them vertically in front and behind the part previously placed. The right edges of the plates should align with the right edge of the part placed in the previous step.

17. Retrieve the fourth and final group of bricks from bag 1. Locate a tan 1x12 plate, two dark red 1x2 right curved wedges and two dark red 1x2 left curved wedges. Place the 1x12 plate vertically one column in from the right end of the model and four studs in from the front edge. Then, take the two right wedges and orient them vertically so one points away from you and the other toward you. Find the front recessed stud along the rightmost column of the model. Place the wedge pointing away from you so the pointed section sits on the recessed stud. Then, place the wedge which points toward you with the pointed section in the recessed section also. Connect the left wedges similarly to the rear recessed stud. The curved wedges should form an interesting texture, like where the cover of a hardback book that has been opened flat meets the spine.

18. Find a tan 2x3 bracket and a black 2x3 inverted slope. Make a part: Orient the bracket horizontally with the lower section to the left, and orient the inverted slope horizontally with the thick end to the right. Connect the thick end of the inverted slope to the lower section of the bracket. Connect the right column of the part to the middle two studs of the 1x12 plate occupying the second-from-right column of the model. There should be an empty space one stud deep and four studs wide in front of and behind the part.

19. Collect two medium nougat 2x6 bricks and a medium nougat 4x4 plate. Create a part: orient the bricks vertically and place them side by side so their front and back edges align, then place the 4x4 plate on top one row in from the front. Add the part on top of the part placed in the previous step so the left edge sits flush against the curved slopes.

Turn the model around so that the wheel at the left end of the model comes round to lie in front. Then, locate the 6x6 region behind the wheel that consists of a frame of plates surrounding a box of gears – we will now focus on building up the function and surrounding structure in the next few steps.

20. Gather two tan 1x4 plates, a tan 2x6 plate, and two dark red 1x6 plates. Place the first 1x4 plate horizontally across the row in front of the curved slopes, leaving one stud free on the left and right. Place the second 1x4 on the front row of the 6x6 region, directly in front of the front gear and with a stud of space on the left and right. Now, make two identical parts: Orient a 2x6 plate vertically and put a 1x6 plate vertically on the left column. Place the first of these parts so its right column connects to the left column of the 6x6 region, then place the second symmetrically on the right side of the 6x6 region.

21. Put the main assembly to the side for a moment while we put together a subassembly that will form the last part of the function at the heart of the set. Collect a black 4x4 turntable base, a black 4x4 round plate, a tan 4L axle with center stop, a tan 20-tooth bevel gear, and a transparent clear 2x2 round brick. Assemble the part as follows:
21.1. Take the turntable base and center the round plate on top. Press the parts together until you hear a loud click – you now have a turntable with a hole in the center that can take a Technic pin or axle.
21.2. Place the 2x2 round brick in the middle of the round plate.
21.3. Next, hold the axle upright with the center stop toward the bottom and orient the bevel gear with the flat face down. Insert the axle into the gear from above, then insert the other end of the axle into the turntable assembly from below. The axle should protrude from the top of the 2x2 round brick.
21.4. Place the subassembly in the 4x4 space in the middle of the 6x6 region you have been working in. The bevel gear should mesh with the other two gears so that when you turn the wheel at the front of the model the turntable spins and the axle connector behind it rises and falls.

22. Find four tan 3x3 round corner plates with 2x2 curved cutouts. Orient one with the curved corner in the back left and place it to the back left of the turntable, then place the other symmetrically around the turntable to form a loop.

23. Take three tan 1x4 plates. Place the first horizontally on the 1x4 of studs directly in front of the turntable. Orient the other plates vertically and connect them to the left and right of the first plate – they should not overhang in front of the first plate.

24. The final parts in the group are a single tan 1x4 plate and four tan 1x2 hinge bases. Place the plate horizontally across the 1x4 of studs in front of the curved slopes. Then, orient two of the hinge bases vertically with the flat edge to the left and place them on the front four studs of the right column of the model. Place the remaining two hinge bases symmetrically on the left.

The first bag is complete! At this stage, you have built a solid base with a multi-purpose function which will bring motion to the completed model. The next bag contains the parts needed to expand the base by building the pages of the book that forms the foundation of the set.

25. Open the second bag and retrieve the first group of parts. Set the main model aside while we create a panel which will become one side of the book. Collect two dark red 4x10 plates and lay them horizontally end to end to form a 4x20 area. Then, take a dark red 1x8 tile and connect it to the front row of the plates six studs in from either end.

26. Find another dark red 1x8 tile, four dark red 2x2 jumpers, and two pearl gold 2x2 plates. Place the tile horizontally directly behind the first. To the right of the 1x8 tiles, place a 2x2 jumper followed by another 2x2 jumper and then a 2x2 plate. The pieces should all sit on the front two rows. Place the remaining plate and jumpers symmetrically on the left side of the assembly.

27. Collect the group of pieces labelled 1A – it contains 16 1x1 tiles in a range of colors that will be laid out to create a spectrum. You may wish to ask a sighted person for help with this step. Navigate to the second row from the back and three columns in from the left edge of the panel, then place the tiles in a row from left to right in the following color order: dark red, red, reddish orange, orange, light bright orange, yellow, light yellow, lime green, bright green, green, teal, medium azure, dark azure, blue, purple, and finally magenta. The print instructions feature a 1:1 scale illustration of the arrangement that matches the colors of the parts, so if you need assistance identifying the colors or the order in which they are to be placed then this is a useful tool.

The print instructions also include the following note from the designers: “This representation of the optical light spectrum shows colors ranging from ultraviolet to infrared – although the human eye can only see a portion of this.”

28. From the remaining pieces of the first group, locate a 2x6 double round corner plate and two tan 1x5 plates. Orient the parts horizontally, with the rounded corners of the 2x6 plate in the rear. First, place a 1x5 plate horizontally on the back row three studs in from the left, then connect the front row of the double round corner plate to the right, and finally place the second 1x5 plate to the right again. The plates should occupy the studs behind the row of 1x1 tiles placed in the previous step.

29. Flip the part over and orient it so the double round plate placed previously overhangs in front. Find a black 3x6 right wedge plate, a black 3x6 left wedge plate, a black 1x12 plate, and a black 2x2 modified plate with 1x2 side studs. Begin by flipping the pieces upside-down so the studs face the table. Then, orient the wedge plates vertically with the thin ends in front. The right wedge has the sloped edge on the right and the left wedge has the sloped edge on the left. Take the right wedge and connect its rear two rows to the front of the assembly one column from the left, then place the left wedge symmetrically at the right end. Next, put the 1x12 plate horizontally one row in from the front and between the wedges – the back edges of the plates should align. Finally, take the modified plate and orient it with the side studs toward you, then connect it in the middle of the assembly in front of the 1x12 plate. The front of the modified plate should align with the front of the double rounded plate.

30. Flip the assembly again so the studs face up, then orient it vertically with the wedge plates pointing left. Connect the part to the main assembly by attaching the rear wedge plate under the front

row of the plates at the back right of the model. The back edge of the panel should align with the back of the model.

The model is beginning to look like a book, with the panel representing one of the covers. The cover of the book is dark red, while the pages are tan.

31. Take a dark red 2x6 plate and two 1x1x2/3 modified plates with open studs. Orient the 2x6 plate horizontally and connect its back row to the front row of the front wedge plate. The plate should provide another connection between the central section of the model and the panel. Note that the front wedge plate has a single uncovered stud remaining in the right corner. Place the first modified plate on this stud, then add the other symmetrically at the rear of the build.

32. Find a tan 1x10 plate, a dark red 1x8 tile, and a dark red left curved wedge slope. Place the plate horizontally one row in from the front and three columns in from the right. Then, place the tile horizontally on the front row starting three columns from the right. Hold the wedge slope so the narrow end points left and add it to the left of the tile.

33. The last pieces in the group are a dark red 1x8 tile and a tan 1x5 plate. Orient the parts horizontally, then place the tile along the back row and columns in from the right end of the assembly. Add the plate of the tile three columns in from the left of the model's right side.

34. Collect the next group of parts and retrieve two tan 1x2 plates, two tan 1x8 tiles, two pearl gold 1x2 right wedge tiles and two pearl gold 1x2 left wedge tiles. Take a left wedge tile and orient it horizontally with the point to the right, then place it across the 1x2 of studs at the front right of the model. Next, orient a right wedge vertically so the point faces you and place it so the sloped edges of the tiles lie flush. Together, the wedge tiles should form a corner like a smooth Braille letter J. Then, orient a 1x2 plate horizontally and connect it to the left of the previous part so the right stud sits inside the corner formed by the wedge tiles. Finally, locate the jumper tiles behind the plate and tiles and connect a 1x8 tile vertically to them so its front edge touches the back edge of the 1x2 plate. Place the other parts symmetrically at the rear of the build.

35. The rest of the pieces in the group are a tan 2x6 brick, two tan 1x4 bricks, and two 2x2 corner bricks. Orient the first corner brick so its studs form the Braille letter D and place it to the left of the front 1x2 plate from the previous step and one row in from the front. Next, place a 1x4 brick vertically behind it, then add the 2x6 brick vertically so its right edge aligns with the right edge of the 1x4 brick. Behind the 2x6 brick, place the other 1x4 brick vertically, and lastly place the remaining corner brick behind the 1x4 brick so their right edges align, and the studs of the corner brick form the Braille letter J.

Set the model to one side while we construct a complimentary panel to connect to the other side of the model.

36. Take the next group of parts and find a dark red 1x8 tile and two dark red 4x10 plates. Orient the parts horizontally. Place the tile on the right four studs of the front row of the first 4x10 plate, then connect the tile's overhang to the left four studs of the front row of the second plate.

37. Collect a dark red 1x8 tile, four dark red 2x2 jumper tiles, and two pearl gold 2x2 plates. Place the 1x8 tile horizontally behind the tile placed in the previous step. Then, place a jumper to the right so its front edge aligns with the front of the part, then place another to the right of the first. Complete the row by placing a 2x2 plate to the right of the last jumper tile. Add the remaining parts symmetrically at the left end of the part.

38. Gather a dark red 1x2 tile, four dark red 1x1 tiles, four white 1x1 round tiles, and three white 1x2 round tiles. We will use them to create a message in Morse code! Navigate to the second-from-last row and move three studs in from the left edge. Orient the parts horizontally, then place them in a row proceeding from left to right in the following order: a 1x2 tile, three 1x1 round tiles, a 1x1 tile, a 1x2 round tile, a 1x1 tile, a 1x1 round tile, a 1x1 tile, two 1x2 round tiles, and lastly one more 1x1 tile.

The message has actually been written upside-down and back-to-front – it should be read from the other side. The message comprises two dashes, then a dot, then another dash, and ends with three dots. The print instructions include the following note from the designers: “In 1836, Samuel Morse invented the Morse code, which allowed long and short ‘beeps’ to be transmitted via wires or written as dots and dashes. Can you tell what this message says?”

39. Take a tan 2x6 double round corner plate and two tan 1x5 plates and orient them horizontally – for the corner plate, ensure the flat edge lies in front. Place the first 1x5 plate on the back row three columns in from the left, in line with the row of tiles. Then, add the 2x6 plate to the right – its back row should overhang the rear of the part. Finally, place the remaining 1x5 plate to the right of the 2x6 plate.

40. Flip over the part so the studs face the floor and the overhang of the double corner plate is in front. Find a black 3x6 left wedge plate, a black 3x6 right wedge plate, a black 1x12 plate, and a black 2x2 modified plate with 1x2 side studs. Turn over all the pieces so their studs face the floor. Take the wedge plates and orient them vertically with the narrow ends in front. Connect the right wedge plate’s back two rows to the front two rows of the part, one column in from the left end. Place the left wedge symmetrically to the right end of the part. Then, place the 1x12 plate horizontally between the wedges so their back edges align. Finally, place the 2x2 modified plate in the middle of the part with the side studs facing you so that the back edge of the part lies against the front of the 1x12 plate.

41. Retrieve the main model and ensure it is oriented with the wheel facing you. Add the panel to the model by connecting the back row of the rear wedge plate under the front row of the protrusion at the back left – the backs of the main model and the panel should align.

42. Find a dark red 2x6 plate and two tan 1x2x2/3 modified plates with hollow studs. Orient the 2x6 plate horizontally and place it at the front of the model and five columns in from the left so its front edge aligns with the front of the panel. Then, note that the wedge plate under the 2x6 plate has one remaining exposed stud – place a modified plate on this stud, then add the remaining modified plate symmetrically at the rear of the model.

43. Locate a tan 1x10 plate, a dark red 1x8 plate, and a dark red 1x2 curved right wedge slope. Place the plate horizontally on the second row and three columns in from the left, filling the gap in the row. Next, place the tile horizontally in front of the plate starting three columns from the left. Then hold the wedge slope horizontally with the point to the right and add it to the right of the tile.

44. Take the final pieces of the group – a dark red 1x8 tile and a tan 1x5 plate – and orient them horizontally. Place the tile along the back row of the model starting three columns from the left of the model, then connect the plate in front of the tile, again three columns from left.

45. Retrieve the next group of bricks and collect two tan 1x2 plates, two tan 1x8 tiles, two pearl gold 1x2 right wedge tiles and two pearl gold 1x2 left wedge tiles. Take a right wedge tile and hold it horizontal with the point to the left and place it across the two leftmost studs of the front row. Then, orient a left wedge tile vertically with the point toward you and place it on the front two studs of the leftmost column so that the wedge tiles form a corner in the shape of the Braille letter H. Next, connect a 1x2 plate horizontally so its left stud sits in the corner created by the wedge tiles. Finally, place a 1x8 tile vertically onto the studs of the jumper tiles behind the tiles and plate so that its front edge touches the back edge of the plate and left tile. Place the remaining pieces symmetrically at the rear of the model.

We are now going to start building up the base, filling in the large gaps and creating structures which mimic the way the pages of an open book lie. As such, nearly all the remaining steps for this bag use tan pieces!

46. Gather a tan 2x6 brick, two tan 1x4 bricks, and two tan 2x2 corner bricks. Orient the first corner brick so its studs form the Braille letter F and place it so its front stud sits on the stud to the right of the front 1x2 plate placed previously. Next, place a 1x4 brick vertically behind it, then put the 2x6 brick vertically to the rear so its left edge aligns with the left edge of the 1x4 brick. Continue by connecting the other 1x4 brick vertically behind the 2x6 brick, then finish by placing the remaining corner brick behind the 1x4 brick so its studs form the Braille letter H.

47. Collect two black 1x12 plates and six 2x6 inverted arches. Use them to make two of the following part as follows:
47.1. Orient a 1x12 plate vertically and an inverted arch vertically with the thin end to the right. Connect the left column of the inverted arch to the middle six studs of the plate – there should be three exposed studs in front of and behind the inverted arch.
47.2. Next, orient two more inverted arches vertically with the thin ends to the right. Place them in front of and behind the first inverted arch – they should overhang in front of and behind the plate by three studs each.
47.3. Repeat the above to obtain a second part. To add the first part to the model, locate the horizontal 1x2 of studs at the front of the build, one row and one column in from the front right corner, and connect the front row of the part to the studs. The part will cover the representation of the visible spectrum – it's an easter egg that only you will know about! Place the second part symmetrically on the right side of the model, hiding the message in Morse code.

48. The remaining parts in the group are four tan 1x2 tiles, four tan 1x3 plates, four tan 1x5 plates, four tan 1x8 bricks, four tan 1x2x1 2/3 curved slopes, and four tan 1x6 curved slopes. Use them to create four identical parts as follows:
48.1. Orient a 1x8 brick horizontally and connect a 1x5 plate horizontally to the right five studs.
48.2. Next, put a 1x3 plate horizontally on the middle three studs of the 1x5 plate, leaving a stud on either side. Orient a 1x2x1 2/3 slope horizontal with the sloped face to the right and connect its left side to the rightmost stud of the part.
48.3. Place a 1x2 tile horizontally to the left of the curved slope. Then orient a 1x6 slope horizontally sloping down to the left and put it to the left of the tile.
48.4. Repeat the above steps until you have four copies of the part. To place the first part, first locate the front left inverted arch, then add the part to the right and one row in from the front of the model. Place the other three parts symmetrically at the rear and the right side of the model.

49. Get the final group of bricks. Take a tan 2x8 plate, a tan 1x2 curved slope, three tan 2x2 curved slopes, a transparent light blue 1x2 curved slope with a recessed stud, and finally a transparent blue 1x1 quarter round tile. Orient all the curved slopes so that they curve down to the left. Use them to make a part as follows:
49.1. Orient the 2x8 plate vertically. Connect a 2x2 curved slope's right column to the front two studs of the left column of the plate.
49.2. Take the 1x2 curved slope with recessed stud and connect the stud behind the prior slope. Next, orient the 1x2 curved slope horizontal and connect it behind the previously placed part so it curves down to the left.
49.3. Orient the 1x1 quarter round tile so its 90 degree corner lies in the front left and put it on top of the stud of the 1x2 curved slope with recessed stud. Then, connect the remaining two 2x2 curved slopes behind the others to complete the column of slopes.
49.4. Connect the part to the main assembly by placing it on the front eight studs of the column to the right of the left column of inverted arches.

50. Gather three tan 2x8 plates and twelve tan 2x2 curved slopes. Orient the plates vertically and the curved slopes so they curve down to the right. Use them to make three of the following part:
50.1. Take a 2x8 plate and connect a curved slope's left column to the front two studs of the right column.
50.2. Place a second curved slope behind the first, then as third behind the second, and a fourth behind the third.
50.3. Repeat the above steps to obtain three total parts. Place the first part so its front right corner sits on the front stud of the column to the left of the inverted arches at the right side of the build. Connect the second part behind the first, then place the third part symmetrically on the left side of the assembly.

51. The final pieces of the group, and the bag, are two tan 6x6 plates. Place the first in the 6x6 gap at the back of the model and to the right of the last part placed in the previous step, then place the second in the similar gap on the right side of the build.

You have reached the end of the second bag! The model is recognizably a book, with tan pages and a luxurious red cover with gold corners. In the third bag, we will work to create a model of the very building blocks of life itself: DNA.

52. Open the third bag and retrieve the first group of parts. Take out two tan 2x4 plates and two tan 4x6 plates and orient the parts horizontally. We will use them to complete more of the base. Navigate to the axle connector sticking up from the center of the build, then move to the right until you feel a vertical 1x2 of studs that sits a plate lower than its neighbor. Place a 2x4 plate across the gap. Put a 4x6 plate in front of the previous part, filling another gap in the structure. Place the other parts symmetrically on the left side of the model.

53. Collect four medium nougat 3x3 round corner tiles. Arrange them to form a loop, then place the circle of tiles around the 6x6 region surrounding the turntable in the front middle of the model.

54. Set aside the main assembly as we focus our attention on building a strand of DNA. To begin, find two red 4x4 round plates with 2x2 round open centers. Stack one plate on top of the other.

55. Locate two tan 1x2 Technic bricks with axle holes and two tan 1x4 curved slopes with rounded ends. Orient the Technic bricks vertically and place them on the left and right of the center hole. Next, take a curved slope and orient it with the flat edge toward you, then connect it behind the Technic bricks – its left end should align with the left side of the left Technic brick. Place the second slope symmetrically on the front row of the subassembly.

56. Find a tan 2x4 tile and a tan 2x2x2/3 modified plate with ribbed sides and an axle hole. Orient the tile horizontally, then connect the modified plate under the middle of the tile so that the tile overhangs by one column on either side. Place the part on top of the subassembly so the left and right columns of the tile attach to the Technic bricks.

57. Next, get two red 2L liftarms with perpendicular axle – these parts have their very first appearance in this set! They feel like a 2L liftarm which has a 1L axle sticking out from one side. The DNA build relies heavily on these parts, so you will see them many times in this section. Take one and orient it with the pinholes facing up and the axle pointing right and insert the axle into the hole in the left Technic brick. Connect the second liftarm symmetrically on the right.

58. Take two blue 3L pins and two 1L liftarms and make two identical parts by slipping a liftarm onto each pin so it lies in the middle. (Note that the position of the stop rings of the pins does not matter.) Then, orient the parts upright. Place the first part by inserting the part into the back pinhole of the left liftarm from above, then insert the second part into the front pinhole of the right liftarm, again from above.

We are about to start building the pairs of bases which comprise the DNA strand. The four different bases which make up DNA are represented here by four colors of 2L Technic axle connectors: yellow, coral, teal, and reddish orange. These parts should have been grouped by color, with yellow connectors in group 2A, coral in group 2B, teal in group 2C, and reddish orange in group 2D. The remaining pieces for this section are in group 2E and are not color-coded. If in doubt as to what color or group you need during any of the following steps, please seek assistance from a sighted individual.

59. Collect the five groups labelled 2A through 2E, keeping the parts separate so as to differentiate the colors of 2L Technic axle connectors. To make the first base pair, gather together a yellow 2L axle connector from group 2A, a coral 2L axle connector from group 2B, and two blue 3L pins, two red 2L liftarms with perpendicular axle, two red 1L liftarms and one black 2L axle from group 2E. Assemble the base pair as follows:
59.1. Orient the axle connectors horizontally and hold the yellow connector on the left and the coral connector on the right. Connect them with the 2L axle.
59.2. Orient a 2L liftarm with perpendicular axle with the pinholes facing up and the axle pointing right. Insert the axle into the left end of the yellow (left) connector. Get the second liftarm and connect it symmetrically to the coral connector's right end.
59.3. Hold the 3L pins upright with the stop rings below and insert them into the back left and front right pinholes from above.
59.4. Slide a 1L liftarm onto each pin so that the tops of the pins poke out the top.

59.5. To add the part to the model, connect the open pinholes at the front left and back right to the pins protruding from the base of the build. To do so, align the left pinhole with the left pin, then swing the right end round until the right pinhole aligns with the other pin.

The rest of this section consists of steps very similar to the above

60. Take a teal 2L axle connector from group 2C, a reddish orange 2L axle connector from group 2D, and two blue 3L pins, two red 2L liftarms with perpendicular axle, two red 1L liftarms and one black 2L axle from group 2E. Use the pieces to construct another base pair as follows:
60.1. Orient the axle connectors horizontally and hold the teal connector on the left and the reddish orange connector on the right. Connect them with the 2L axle.
60.2. Orient a 2L liftarm with perpendicular axle with the pinholes facing up and the axle pointing right. Insert the axle into the left end of the teal connector. Get the second liftarm and connect it symmetrically to the reddish orange connector's right end.
60.3. Hold the 3L pins upright with the stop rings below and insert them into the back left and front right pinholes.
60.4. Slide a 1L liftarm onto each pin so that the tops of the pins poke out the top.
60.5. Add the completed part to the model by connecting the open pinholes at the front left and back right to the pins protruding up from the previous base pair.

The print instructions feature the following fun fact: "Deoxyribonucleic acid (DNA) is the language in which the genetic code for all life forms is 'written'. DNA is formed of pairs of bases (A with T, C with G) bound together in a sequence forming a double helix structure. Human DNA consists of about 3 billion base pairs!"

61. Let's make another yellow and coral base pair: take a yellow 2L axle connector from group 2A, a coral 2L axle connector from group 2B, and two blue 3L pins, two red 2L liftarms with perpendicular axle, two red 1L liftarms and one black 2L axle from group 2E. Use the pieces to construct another base pair as follows:
61.1. Orient the axle connectors horizontally and hold the yellow connector on the left and the coral connector on the right. Connect them with the 2L axle.
61.2. Orient a 2L liftarm with perpendicular axle with the pinholes facing up and the axle pointing right. Insert the axle into the left end of the teal connector. Get the second liftarm and connect it symmetrically to the reddish orange connector's right end.
61.3. Hold the 3L pins upright with the stop rings below and insert them into the back left and front right pinholes.
61.4. Slide a 1L liftarm onto each pin so that the tops of the pins poke out the top.
61.5. Add the completed part to the model by connecting the open pinholes at the front left and back right to the pins protruding up from the previous base pair.

62. Next, build two more teal and reddish orange base pairs: take two teal 2L axle connectors from group 2C, two reddish orange 2L axle connectors from group 2D, and four blue 3L pins, four red 2L liftarms with perpendicular axle, four red 1L liftarms and two black 2L axles from group 2E. Use the pieces to construct two of the following part:
62.1. Orient the axle connectors horizontally and hold the teal connector on the left and the reddish orange connector on the right. Connect them with the 2L axle.
62.2. Orient a 2L liftarm with perpendicular axle with the pinholes facing up and the axle pointing right. Insert the axle into the left end of the teal connector. Get the second liftarm and connect it symmetrically to the reddish orange connector's right end.
62.3. Hold the 3L pins upright with the stop rings below and insert them into the back left and front right pinholes.
62.4. Slide a 1L liftarm onto each pin so that the tops of the pins poke out the top.
62.5. Repeat the above instructions to obtain a second part. Add the first part to the model by connecting the open pinholes at the front left and back right to the pins protruding up from the previous base pair. Connect the second part to the first in a similar manner.

63. Build another yellow and coral base pair: take a yellow 2L axle connector from group 2A, a coral 2L axle connector from group 2B, and two blue 3L pins, two red 2L liftarms with perpendicular axle, two red 1L liftarms and one black 2L axle from group 2E. Use the pieces to construct another base pair as follows:

63.1. Orient the axle connectors horizontally and hold the yellow connector on the left and the coral connector on the right. Connect them with the 2L axle.
63.2. Orient a 2L liftarm with perpendicular axle with the pinholes facing up and the axle pointing right. Insert the axle into the left end of the yellow connector. Get the second liftarm and connect it symmetrically to the coral connector's right end.
63.3. Hold the 3L pins upright with the stop rings below and insert them into the back left and front right pinholes.
63.4. Slide a 1L liftarm onto each pin so that the tops of the pins poke out the top.
63.5. Rotate the part 180 degrees so that the yellow and coral connectors swap sides – this ensures that the yellow connectors all attach to the same helix, and similarly for the teal connectors. Add the part to the model by connecting the open pinholes at the front left and back right to the pins protruding up from the previous base pair.

64. Next, build yet another yellow and coral base pair, but this time with a twist – instead of 1L liftarms we will use axle and pin connectors! Take a yellow 2L axle connector from group 2A, a coral 2L axle connector from group 2B, and two blue 3L pins, two red 2L liftarms with perpendicular axle, two red 1L axle and pin connector number ones, and one black 2L axle from group 2E. Use the pieces to construct another base pair as follows:
64.1. Orient the axle connectors horizontally and hold the coral connector on the left and the yellow connector on the right. Connect them with the 2L axle.
64.2. Orient a 2L liftarm with perpendicular axle with the pinholes facing up and the axle pointing right. Insert the axle into the left end of the coral connector. Get the second liftarm and connect it symmetrically to the yellow connector's right end.
64.3. Hold the 3L pins upright with the stop rings below and insert them into the back left and front right pinholes.
64.4. Orient an axle and pin connector horizontally with the pin hole to the left facing up. Slide it onto the left pin so that the top of the pin pokes through the top. Attach the second axle and pin connector symmetrically to the right side of the part.
64.5. Add the part to the model by connecting the open pinholes at the front left and back right to the pins protruding up from the previous base pair.

65. Take a teal 2L axle connector from group 2C, a reddish orange 2L axle connector from group 2D, and two blue 3L pins, two red 2L liftarms with perpendicular axle, two red 1L liftarms and one black 2L axle from group 2E. Use the pieces to construct another base pair as follows:
65.1. Orient the axle connectors horizontally and hold the reddish orange connector on the left and the teal connector on the right. Connect them with the 2L axle.
65.2. Orient a 2L liftarm with perpendicular axle with the pinholes facing up and the axle pointing right. Insert the axle into the right end of the teal connector. Get the second liftarm and connect it symmetrically to the reddish orange connector's left end.
65.3. Hold the 3L pins upright with the stop rings below and insert them into the back left and front right pinholes.
65.4. Slide a 1L liftarm onto each pin so that the tops of the pins poke out the top.
65.5. Add the completed part to the model by connecting the open pinholes at the front left and back right to the pins protruding up from the previous base pair.

66. Only two base pairs remain! Construct the last yellow and coral base pair: take the last yellow 2L axle connector from group 2A, the final coral 2L axle connector from group 2B, and two blue 3L pins, two red 2L liftarms with perpendicular axle, two red 1L liftarms and one black 2L axle from group 2E. Use the pieces to construct another base pair as follows:
66.1. Orient the axle connectors horizontally and hold the yellow connector on the left and the coral connector on the right. Connect them with the 2L axle.
66.2. Orient a 2L liftarm with perpendicular axle with the pinholes facing up and the axle pointing right. Insert the axle into the left end of the yellow connector. Get the second liftarm and connect it symmetrically to the coral connector's right end.
66.3. Hold the 3L pins upright with the stop rings below and insert them into the back left and front right pinholes.
66.4. Slide a 1L liftarm onto each pin so that the tops of the pins poke out the top.
66.5. Add the part to the model by connecting the open pinholes at the front left and back right to the pins protruding up from the previous base pair.

67. To build the final base pair, take the last teal 2L axle connector from group 2C, the last reddish orange 2L axle connector from group 2D, and two red 2L liftarms with perpendicular axle, two red 1L liftarms and one black 2L axle from group 2E. Use the pieces to construct another base pair as follows:
67.1. Orient the axle connectors horizontally and hold the teal connector on the left and the reddish orange connector on the right. Connect them with the 2L axle.
67.2. Orient a 2L liftarm with perpendicular axle with the pinholes facing up and the axle pointing right. Insert the axle into the right end of the orange connector. Get the second liftarm and connect it symmetrically to the teal connector's left end.
67.5. Add the completed part to the model by connecting the open pinholes at the front left and back right to the pins protruding up from the previous base pair.

68. At last, the DNA strand is complete! To join the finished subassembly to the main model, locate the turntable in the front middle and connect the base of the DNA strand to the turntable. Turning the wheel on the front of the model causes the DNA strand to spin. Marvelous!

With that, you have come to the end of the third bag of the set. The fourth bag contains the parts to construct a microscale representation of New York City, Newton's famous apple tree, and a minifigure of Newton himself.

Open bag 4 and collect the first group of pieces. Let's begin by building the minifigure of Isaac Newton. Connect the torso to the legs, ensuring the hands and the feet face front. Put the head on the neck, then add the hair to the top of the head. Finally, take the red minifigure apple and clip it into his hand.

The Newton minifigure is sporting a sand green jacket under which a blue shirt can be seen. Around his neck he wears a white neckerchief. His trousers are white, ending in black boots. He has long, tumbling grey locks which frame his dual-sided head – on one side is a contented expression, as if the great scientist is solving a math problem; on the other side is an expression of mild shock, perhaps representing the moment he is struck by a falling apple!

The print instructions contain the following information on the man himself: "Sir Isaac Newton (1643-1727), an English polymath and a key figure in the Scientific Revolution during the Age of Enlightenment, formulated laws of motion and color theory through his work with light prisms – some of which you have already built!"

Next, we will build a microscale city. Let's begin by building a small base for it.

69. Find a light grey 4x6 plate and put it horizontally in front of you.

70. Flip the plate upside-down so the plate remains horizontal, but the studs face the ground. Take a dark grey 2x3 brick and hold it vertically and upside-down, then connect it to the back left corner so the back and left sides of the brick align with the edges of the plate. Next, take a dark grey 1x3 arch and orient it vertically and upside down, then place it at the back right corner so its back and right sides align with the edges of the plate.

71. Locate a dark grey 1x6 brick and orient it horizontal and upside-down. Connect it to the front row of the assembly.

72. Collect two 2x2 hinge brick top plates – these parts have a 2x2 of studs with a smooth underside with a protrusion on one side. Orient the parts upside-down with the protrusions vertically along the left side. Place the first part on the rear left corner and the second in front of the first so their left edges align with the edge of the subassembly and do not overhang in front or back.

73. Flip the subassembly so it remains horizontal, but the studs of the plate now face up. The remaining pieces of group 1 are a black 1x2 plate, a black 1x1 tile, a black 1x2 tile, a black 2x2 corner tile, and a black 2x2 jumper plate. Place them as follows: put the jumper in the back left corner, then put the 1x1 tile in front of the jumper on the left column. To the right of the jumper, put the 1x2 tile horizontally on the second-from-back row. Orient the corner tile so it forms a smooth Braille letter F and place it to the right of the 1x2 tile, so its back row sits on the back row of the subassembly. Lastly,

add the 1x2 plate vertically to the right column so its back stud sits in the corner of the corner tile. Now, retrieve the second group of parts and find a bright green 1x2 plate and a bright green 1x2 jumper plate. Orient the pieces horizontally and place the plate to the right of the 1x1 tile on the second row of the base, then add the jumper to the right.

74. Bring back the main model and orient it with the DNA strand at the rear. To the right of the DNA are two hinge brick bottoms – connect the hinge top plates to the bottoms, then tilt the right end of the part down to meet the curved slopes to the right. The city's base now sits at a slight angle, bringing further dynamism to the overall display. The arch neatly straddles a trans-blue slope, which in this context becomes water flowing out of the city.

75. Take a dark grey 1x6 brick, a light grey 1x2 plate, and a light grey 1x6 slope. (The 1x2 plate should have been attached to the 1x6 brick to differentiate it from the bright green plate you have already taken from this group.) Orient the brick horizontally and put the 1x2 plate horizontally on the left two studs. Then orient the slope so it slopes down to the right and place it on top of the brick and plate – it should not overhang the part in any direction. Add the part directly in front of the base of the city in the back right of the model.

76. Next, we will add more tiles to the city's base. Gather a black 2x2 corner tile, two black 2x2 round corner tiles, two bright green 1x1 quarter round tiles, and a dark red 1x1 double-curved slope. Start by orienting one of the curved corner tiles and a 1x1 quarter round tile with its flat edges at the back left and front right, then connect its rear to the leftmost stud of the front row of the city base. Place the quarter round tile on the stud to the right so the two parts form a 2x2 quarter circle. Place the other curved corner tile and quarter round tile symmetrically at the right end of the base. Now orient the 2x2 corner tile so it forms a smooth version of the Braille letter H and connect its rear to the left stud of the horizontal 1x2 of studs between the round tiles placed previously. Finally, hold the double-curved slope with a flat face toward you and put it on the remaining free stud of the front row.

77. Let's build a microscale skyscraper to add to the city! Gather four dark grey 1x1 bricks with studs on four sides, three dark grey 1x1x2/3 modified plates with open studs, twelve light grey 1x2 grille tiles, a light grey 1x1 plate, four light grey 1x1 half-circle tiles, and a light grey antenna element. Use them to construct the skyscraper as follows:
77.1. Take a 1x1x2/3 modified plate and stack a 1x1 brick with studs on four sides on top.
77.2. Find another 1x1x2/3 plate and 1x1 brick with studs on four sides. Stack the plate, then the brick on top of the column.
77.3. Put the final 1x1x2/3 plate on top of the part, then add another 1x1 brick with studs on four sides.
77.4. Take a 1x2 grille tile and orient it vertically and upright with the grille facing you. Attach its top to the lowest front side stud so its bottom aligns with the bottom of the skyscraper. Place another similarly on the middle side stud, then another on the top side stud. The whole side of the part should now be tiled. Collect the other grille tiles and place them symmetrically on the other three sides of the skyscraper.
77.5. Locate the final 1x1 brick with studs on four sides and place it on top of the part, then take the 1x1 plate and put it on top of the brick.
77.6. Pick up a 1x1 half-circle tile and orient it upright with its smooth face toward you and the rounded end at the top. Connect the piece to the front side stud at the top of the part, then add the other three tiles symmetrically to the remaining side studs.
77.7. Find the antenna element and place it on top of the skyscraper with the antenna upright.
77.8. Add the completed skyscraper to the city by placing it on the stud of the jumper in the back left corner of the city base. The skyscraper resembles the Empire State Building, with a tall, pointed antenna at the top.

Retrieve the next group of parts, labelled 3A. There are some extra pieces needed for this section contained in group 3B – the instructions will specify when parts need to be taken from this group.

78. Now we will construct another building to add to the city. Begin by finding a black 1x3 plate and a dark blue 1x2 inverted bracket with 1x2 side studs. Orient the parts horizontally – the bracket's side studs should face you. Place the bracket on top of the right studs of the plate so only the left stud of the plate is uncovered.

79. Obtain a black 1x2 bracket with centered 1x2. Orient it horizontally with the studs upright and the anti-studs of the smooth bracket vertically upright on the right. Connect the studs of the piece to the previously placed bracket.

80. Take a dark grey 1x2 brick with grille profile and orient it horizontally with the vertical grilles facing you. Place it on top of the previous piece.

81. Gather another dark grey 1x2 brick with grille profile, a dark grey 1x1 inverted bracket with 1x2 side studs, a light grey 1x1 plate, and a dark blue 1x2 inverted bracket with 1x2 side studs. Use them to make a part:
81.1. Orient the 1x2 inverted bracket horizontally with the side studs facing you. Put the 1x1 plate on its right stud.
81.2. Take the 1x1 inverted bracket and hold it with the side studs facing left, then put it on the 1x2 inverted bracket's left stud.
81.3. Orient the 1x2 brick horizontal with the vertical grilles toward you and place it on top of the part.
81.4. Connect the part to the model by placing the right stud of the part on the left stud of the subassembly.

82. Now take a dark grey 1x3 plate from group 3B and a dark grey 1x1 plate with horizontal clip from group 3A. Orient the 1x3 plate horizontally and connect it to the left three studs of the subassembly. To the right, put the plate with clip so the clip overhangs to the rear.

83. Find a light grey 1x1 half-round tile and a light grey 1x3 jumper. Orient the half-round tile with the round end to the left and place it on the leftmost stud, then put the jumper horizontally to the right.

84. Collect the teal 1x2 bracket with 1x2 side studs and orient it with the side studs toward you. Apply it to the studs of the jumper placed previously.

85. Next, locate a trans-clear 1x1 tile and put it on the bottom right side stud of the subassembly. To the left, place a trans-clear 1x2 left wedge tile with the pointed end to the left. Collect a sand blue 1x2 left wedge tile from group 3B, then orient it with the pointed end to the right and place it to the left of the other wedge tile.

86. Find a trans-clear 1x2 plate and a dark grey 1x2 ingot. (The ingot feels like a tile, but has sides which angle in from bottom to top.) Orient the pieces horizontally and put the ingot on top of the plate. Reorient the part so it is vertically upright with the ingot facing left and attach it to the vertical 1x2 of side studs on the left side of the subassembly.

87. Collect the remaining pieces from group 3B, which are a bright green 1x1 tile with pixelated DNA pattern and a dark pink 1x2 tile. The latter piece has printing on it which suggests it is a stick of bubblegum, with a happy, bright pink bubble at the right end and blue text reading 'Guble Bubble' at the left end. Place the 1x1 tile on the right side stud on the front of the building near the top. Orient the 1x2 tile vertically with the text near the front and place its front on top of the top left stud of the subassembly. You may wish to ask a sighted person for assistance when placing this piece.

88. The last step in the creation of the subassembly is the placement of the two tiles remaining in group 3A. The pieces are light aqua 1x2 tiles printed to look like cat treats: on the left is white text declaring the product's name, Meow Bits, under which is an illustration of small, vaguely fish-shaped light brown biscuits. To the right is a happy kitten which is reaching a paw toward the treats. Orient the pieces vertically with the text at the front – you may wish to ask for assistance with this step. Take the first part and connect its front to the stud on top of the subassembly. Then, hold the second piece vertically upright with the flat face toward you and connect its top to the left side stud of the bracket.

89. To add the completed building to the city, first turn the subassembly ninety degrees to the right so it stands upright with the ingot at the top. Note that there is a 1x2 at the base which can slot into the horizontal 1x2 of studs to the right of the skyscraper which is already part of the city. Place the 1x2 in this space. The building makes a lot more sense now that it is correctly oriented! Up its left side runs a transparent stripe, behind which the grille bricks lend texture that suggests many levels. At the top of the building, the trans-clear 1x2 plate capped with an ingot suggests the presence of a penthouse or

an exclusive restaurant. The print tiles at the front right corner of the building now represent billboards advertising cat treats and bubblegum.

90. Grab the next group of parts, labelled group 4, and gather the following pieces: a light grey 1x4 tile, a light grey 1x1x2/3 half-circle brick with side stud, a light grey 1x1 modified plate with vertical tooth, a light grey minifigure hose nozzle, two black 1x1 round plates with bars underneath, a trans-clear minifigure saucers, and a trans-clear curved bar with 1L axle at one end and a 1x1 round plate at the other. We will use them to make a tiny aircraft flying past the city. Create the plane as follows:
90.1. Hold the 1x4 tile horizontal and upside-down so the anti-studs face up. Then, take the half-circle brick with side stud and orient it with side stud pointing down and the top stud facing you. Center the brick on the tile and connect the side stud to the center of the plate.
90.2. Find the black 1x1 round plates with bars underneath and orient them stud-down with the bars vertical. Place them on either side of the modified brick – there should be a small gap between each round plate and the end of the tile.
90.3. Locate the trans-clear minifigure saucer and hold it with the stud facing you. Put it on the stud of the brick. It looks quite like the plane is driven by a propeller spinning so fast that it is visible only as a blur – fantastic parts use!
90.4. Find the 1x1 plate with tooth and hold it vertically upright with the stud toward you and the tooth at the bottom. Connect the stud to the rear of the central brick.
90.5. Next, take the clear curved bar and hold it with the studs in the lower left so that the piece curves up from left to right. Connect the front-facing stud of the curved bar to the rear of the tooth plate placed previously. Then, pick up the minifigure hose nozzle element and orient it so the longer bar points toward you and the shorter bar points down. Insert the long bar into the hollow stud of the curved bar's plate from behind – the nozzle makes for an excellent tail!
90.6. The tiny airplane is complete! To add it to the model, first rotate the assembly so the axle end of the bar points down and the plane is flying toward you, then clip the bar into the clip at the rear right of the building placed in the last section. The plane is suspended in place by the clear bar, which is as close as possible to hanging it in midair!

91. The remaining parts in group 4 are the following: five medium nougat 2x2 left wedge plates, a medium nougat 1x1 plate, sand green minifigure trophy element, a red 1x2 ingot, a red 1x2 plate, and a trans-clear 1x2 plate. (The trans-clear 1x2 plate should be stacked on top of the red 1x2 plate to help you differentiate them.) Use the pieces to create three final additions to the city:
91.1. Take the five 2x2 left wedge plates and stack them on top of one another to form a wedge-shaped building. Orient the part with the studs vertical and the thin end facing you then connect its back row to the horizontal 1x2 of studs in front of the skyscraper.
91.2. Create a microscale statue by placing the trophy element on top of the 1x1 plate, then place the statue on the stud to the right of the stack of wedges placed previously.
91.3. Finally, make a tiny bus by stacking a trans-clear 1x2 plate on top of the red plate, then place the red ingot on top. Orient the part horizontally and place its rear stud on the stud to the right of the statue, then swing its front to the left a little so it appears to be navigating round the curve of the road.

The microscale city is complete! Not a direct analogue for any one place, the city features a tall skyscraper reminiscent of the Empire State building, a wedge-shaped building similar to the Flatiron Building, a red bus like those seen in London, and a miniature plane flying by. Modern cities are marvels of engineering, not to mention our transport systems.

In the next section, we will switch our attention to the left side of the build, where we will construct Newton's apple tree. Retrieve the next group of bricks, marked group 5.

92. Gather the following parts: a tan 4x4 plate, a green 4x4 round plate, a bright green 3x3 round heart plate, a bright green 2x2 round plate, a bright green 1x3 plate, two bright green 1x2 plates, a bright green 1x1 plate, two bright green 1x1 modified plates with a vertical tooth, a bright green 2x2 round corner tile, a bright green 1x1 quarter circle tile, two tan 2x2 hinge brick top plates, a brown 2x2 round brick with 4 roots, and a brown 2x2 round tile with hole. Let's use the parts to build a base for the tree:
92.1. Take a hinge plate and orient it with the protrusion on the underside to the rear. Then, take a 1x3 plate and place it horizontally along the back row so it overhangs to the right by one stud.
92.2. Collect the second hinge plate and orient it like the previous hinge plate. Connect its back left stud under the overhang of the 1x3 plate.

92.3. Locate a 1x1 plate with vertical tooth and hold it with the tooth to the right. Place it to the right of the 1x3 plate.
92.4. Obtain the 4x4 plate and put its back row on the front row of the subassembly.
92.5. Find the second 1x1 plate with vertical tooth and orient it with the tooth to the left. Place it on the rear left stud of the assembly. To the right of the tooth, add the 1x1 plate. Then take the 2x2 round corner tile and orient it with its flat edges in the rear left facing left and the front right facing front. Place it in the back right corner of the assembly. Next, put a 1x2 plate vertically in front of the round corner tile along the right edge of the part, then put the 1x1 quarter circle tile in front of the plate with the round corner in the front right. Take the 3x3 heart plate and orient it with its 90 degree corner in the back right. Connect its back two rows to the front two rows of the assembly, to the left of the quarter circle tile. Add the remaining 1x2 plate vertically behind the left column of the heart plate, then finish by placing the 2x2 round plate to the right.
92.6. Take the 4x4 round plate and place it over the rear four rows of the part – the hole in the middle of the plate will line up with the axle hole of the 2x2 round plate placed previously. Then, locate the 2x2 round brick with roots and connect it in the middle of the round plate. Stack the 2x2 round tile with hole on top of the brick.
92.7. Reorient the subassembly so the hinge plates on the underside of the part lie to the right. Connect it to the main model by pushing the protrusions beneath the hinge plates into the hinge brick bottoms to the immediate left of the DNA strand. Swing the left end down to meet the slopes, giving the base a subtle angle of about 10 degrees.

93. Let's make another subassembly, this time a trunk for the tree. Gather a black 2L axle, a yellow 3L axle, a brown 2L bar with stop ring, a brown 2x2 round elbow brick with 45 degree angle, and a brown stepped dragon horn. (The dragon horn piece has a 2x2 base which tapers to a 1x1 tip as it curves through 45 degrees in three stepped sections.) Assemble the tree trunk as follows:
93.1. Orient the elbow brick with one end facing the floor and curving up to the left. Insert the 2L axle into the upper end of the piece.
93.2. Take the dragon horn piece and hold it with the thin end pointing up and the thick end to the lower right. Connect the thick end to the elbow brick via the axle protruding to the left of the elbow brick. Then, take the 2L bar and insert one end into the top of the dragon horn from above.
93.3. Complete the trunk by inserting the 3L axle into the bottom of the elbow brick from below.
93.4. Add the part to the build by inserting the exposed part of the 3L axle into the hole in the center of the 2x2 round tile capping the base to the left of the DNA strand. The trunk curves away from the DNA, then up toward the vertical.

94. Retrieve the group of bricks labelled as group 6. This is the last group of bricks for this bag! Collect a green 1x1 cone brick, a bright green 1x1 round plant plate with three leaves, three brown 1L bars with clips, and a brown ring with 3 bars and 3 bar holes. Make another part, this time providing connections for the tree's foliage.
94.1. Take the ring with 3 bars and 3 holes and orient it stud up with one bar hole facing to the left.
94.2. Collect the bar clips and insert one into each of the three bar holes. Orient the clips so they are upright – a bar held by one of the clips would be held horizontally rather than upright.
94.3. Connect the plant plate to the stud in the middle of the part with the leaves lying between the left and front right bar clips. Then place the 1x1 cone on the stud of the plant plate.
94.4. To add the part to the model, insert the bar at the top of the tree trunk into the center of the part from below. The bar should pass through the hollow stud in the middle of the ring and into the plant plate.

95. The tree needs foliage – let's give it some. Gather the following pieces: three red minifigure apples, three brown minifigure handlebars, nine bright green 1x1 round plant plates with three leaves, three green 4x3 plant leaves and three 6x5 plant leaves. Use the pieces to construct three identical parts as follows:
95.1. Find a handlebar element and orient it with the ends pointing up and the central section to the rear. Take a 6x5 plant leaf piece and hold it horizontally with the thinner end to the right, then insert the right end of the handlebar into the middle hollow stud of the leaf from below.
95.2. Get a 4x3 leaf piece and orient it horizontally with the base to the right – the base is the stud from which the limbs of the leaf piece originate. Slide the hollow stud at the base onto the left end of the handlebar, then swing its right end back so it sits at 45 degrees to the horizontal.
95.3. Collect three 1x1 plant plates and orient them with the leaves toward you. Connect the first to the hollow stud at the base of the 4x3 leaf piece. Navigate slightly forward until you find the leftmost

stud of the larger leaf piece, then move to the right two studs to locate the next hollow stud where you should put the second plant plate. Move back one stud and two to the right and place the final plant plate here. Swing the leaves of the final plant plate about 30 degrees to the right and the leaves of the first plant plate 30 degrees to the left to avoid unnatural uniformity.
95.4. The last step is to take a minifigure apple and insert its stem into the underside of the hollow stud on which sits the middle plant plate.
95.5. Repeat the above twice more to obtain three identical parts. Attach the parts to the tree by clipping the central sections of the handlebars into the bar clips at the top of the tree.

96. Create one last part with the remaining pieces from the group, which are three bright green 1x1 round plant plates with three leaves, a bright green plant stem with three leaves, and a 6x5 plant leaf.
96.1. Take the plant leaf and orient it horizontally with the narrower end to the left.
96.2. Collect the 1x1 plant plates and connect them beneath the left, front right and back right studs of the leaf. Twist them in place to get the middle of the three leaves to point out from the leaf piece.
96.3. Get the plant stem and insert the bar into the hollow stud in the center of the leaf piece from above, pushing it all the way in.
96.4. Add the completed part to the model by inserting the bar protruding under the middle of the part into the cone at the top middle of the tree assembly.

You have completed the apple tree! The tree has a gently curving trunk and broad canopy beneath which Sir Isaac Newton can be seated. There is a 2x2 of studs to the left of the tree which is perfect for this purpose!

The print instructions feature the following information: “The apple tree that allegedly inspired Isaac Newton’s Theory of Gravity, now estimated to be 400 years old, still thrives at the scientist’s family home in Lincolnshire, England.”

You have come to the end of the fourth bag. The fifth bag contains the pieces to build a miniature automobile, a garden, and a model carbon atom.

97. Retrieve the first group of pieces from the fifth bag. Take a dark grey 1x2 left wedge plate and hold it with the studs horizontal and the narrow end to the right. Locate the upright axle in the middle of the build in front of the DNA strand, then navigate to the column of studs to the left. Place the wedge plate so that its right end meets the curved slope behind the axle and there are two rows between the back left corner of the wedge plate and the base of Newton’s tree.

98. Collect a dark grey 1x2 plate, a dark grey 2x2 left wedge plate, and two dark grey 3x6 left wedge plates. First, place the 1x2 plate horizontally in front of the previously placed piece, then orient the 2x2 wedge plate horizontally with the narrow end to the left and put it in front of the 1x2 plate. Next, orient a 3x6 plate horizontally with the narrow end to the right and place it to the left of the previous wedge plate so that their angled edges form a single edge. The left end of the wedge plate should overhang the curved slopes to the left of the studded area. Hold the final 3x6 wedge plate horizontal with the narrow end to the right and place it behind the other 3x6 wedge.

99. The remaining pieces in the group are a dark grey 2x2 round jumper, a trans-clear 2x2 dish, and six light grey 1x1 round tiles. Begin by placing the dish on the jumper, then connect the parts to the wedge plates placed previously three columns in from the left edge. There should be a vertical 2x3 of studs to the left. Take a round tile and place it on the stud in the left column behind the dish, then place another on the stud in the right column in front of the dish. Connect another tile to the front row to the left of the dish and then one more to the right on the rear row. Navigate one row forward and three columns to the right and put another tile. Place the final tile two rows forward and one column to the right of the previous tile.

At the end of the first group, you have added a dark grey road upon which to display the what we are about to build: an old-timey automobile. Set the main model to the side while we construct the vehicle.

100. Retrieve the second group of bricks and locate a black 3x3 plate and a black 3x3 cross plate. Connect the cross plate to the 3x3 square plate so the cross is centered on the square plate.

101. Gather four black modified 1x2 plates with pin hole on the bottom. Orient two of them horizontally with the pin hole to the right then connect their left studs to the front and back studs of the right column of the assembly. Add the two remaining modified plates symmetrically to the left side of the build.

102. Find another black 3x3 plate and place it on top of the central 3x3 of studs.

103. Collect four tan ¾ Technic pins. Take one and hold it vertically with the stop ring toward you then insert it into the front left hole. Take another and insert it into the front right hole. Insert the other two pins symmetrically at the rear of the build.

104. Locate two black 1x2 left curved wedge slopes, two black 1x2 right curved wedge slopes, and a dark orange 1x3 tile. Place the tile vertically on the middle column of the assembly. Next, take a right and a left wedge and orient them horizontally with their pointy ends to the left. Place the right end of the right wedge on the front left stud of the assembly, then place the left wedge symmetrically at the back. Place the two remaining wedge slopes symmetrically on the assembly's right side.

105. Find three black 1x1 half-circle bricks with stud on the side and orient them with the side stud facing left. Place the bricks on the column of studs to the left of the 1x3 tile placed previously.

106. Take a black 1x3 jumper plate and place it vertically on top of the bricks placed previously. Then, find a trans-clear 1x2 panel and hold it vertically with the panel wall to the left. Connect it to the studs of the jumper.

107. Gather the remaining pieces from the group, which are two black 1x3 round plates, a black 1x1 modified plate with vertical tooth, and two pearl gold 1x1 round tiles with upright bar. Use them to make a part as follows:
107.1. Orient the 1x3 plates horizontally and stack them.
107.2. Place the tooth plate on the middle stud of the part with the tooth hanging forward. Then, hold a 1x1 round tile with upright bar upside-down with the bar pointing to the floor. Insert the bar into the hollow stud on the left side of the part. Place the second similarly at the right.
107.3. To add the part to the automobile, reorient it on its side so the tooth is on top, and the stud of the tooth plate faces left. Connect the part to the three side studs at the left side of the build. The part now forms the bonnet of the automobile, with the pearl gold round tiles representing headlights.

108. Open the third group of parts and collect two dark brown 1x2 plates, two dark orange 1x2 inverted brackets with 1x2 side studs, two dark red 1x2 panels, two black 1x3 jumper plates, and a black vehicle spoiler with 1x2 base. Use them to make seats for the vehicle as follows:
108.1. Take an inverted bracket and orient it vertically with the side studs facing right.
108.2. Orient the two 1x3 jumper plates horizontally and connect their right studs under the bracket's front and back studs respectively.
108.3. Put the second inverted bracket vertically to the left of the first and with the side studs facing left.
108.4. Get a 1x2 plate and put it on the side studs of the right bracket, then put the other 1x2 plate on the side studs of the left bracket.
108.5. Orient the spoiler element horizontal with the studs in front and connect the base to the rear row of the part.
108.6. Orient the 1x2 panels horizontal with the walls in the rear. Place the first on the rear row of the part and the second on the front row.
108.6. Turn the part 90 degrees so the spoiler sits to the right, then connect its left column to the right column of studs on the automobile. The panels form seats!

109. Locate a black 1x2 left curved wedge slope and a black 1x2 right curved wedge slope. Orient the pieces with the pointy ends to the right. Connect the left end of the right wedge slope to the front right side stud of the part placed previously. Place the left wedge slope symmetrically at the rear.

110. Find two black 2x2 modified tiles with two 1x1 quarter-round cutouts. Orient the first with its cutouts in the back left and front right, then connect its back right section to the side stud on the front of the vehicle to the left of the first wedge slope placed in the previous step. Add the second tile

symmetrically at the rear. The tiles give shape to the sides of the automobile, enclosing the passengers.

111. Complete the automobile by collecting four trans-clear wheels with Technic pin hole and hard rubber tires and connect them to the pins protruding from the chassis. The wheelchair wheels have a spoke-like texture to the rims which works well to represent the spoked wheels that these old vehicles sported.

The print instructions include the following information: “The early 1900s automobile models became precursors to a more globalized world and the age of combustion and propelled travel.”

112. To add the automobile to the display, first locate the dish on the section of road built earlier – the road starts to the left of the upright Technic connector in the center of the display. Then, connect the stud of the dish to the center of the underside of the vehicle. Angle the car so it is driving along the road, away from the display.

We will spend the next few steps laying the groundwork for a future section of the display, then move on to create a garden celebrating the work of George Washington Carver.

113. Get the next group of bricks, labelled group 4, and extract two dark brown 1x2 plates, a medium nougat 1x2 tile, a medium nougat 1x6 tile, and two medium nougat 2x2 triangular tiles. Navigate to the upright Technic connector in the center of the build, then move forward until you find the row of studs in front of the curved slopes. Place the 1x6 tile horizontally here, centered so that there are 5 free studs to the left and right of the piece. Next, take a triangular tile and hold it with the square corner in the front left, then place it to the right of the 1x6 tile. Its rear corner should align with the back of the 1x6 tile. Add the second triangular tile to the left of the 1x6 tile symmetrically. Now put a 1x2 plate horizontally to the right of the left triangular tile and in front of the 1x6 tile. To the right of the plate, lay the 1x2 tile horizontally, then remaining 1x2 plate to the right of the tile to complete the row.

114. Gather two more medium nougat 1x2 tiles, two dark brown 1x2 plates, four medium nougat 2x2 jumper plates, and two medium nougat 2x2 triangular tiles. Begin by taking the 1x2 plates and stacking them on top of the 1x2 plates placed in the previous step. Next, orient a triangular tile with the right angle in the front right and place it in front of the left triangular tile from the last step and two columns to the left – the angled edges of the tiles should join to form a single angled edge. Place a 1x2 tile vertically to the right, then put the four 2x2 jumpers side by side in a row moving left to right. Add the second 1x2 tile vertically to the right of the jumpers. Finally, place the remaining triangular tile to the right so that its right angle is in the front left.

The tiles, plates and jumpers placed over the last two steps will form the floor for a laboratory to be built later. Next, we will lay a few more tiles and plates to prepare a spot for the garden.

115. Find a black 1x4 plate, a black 2x3 tile, two black 2x2 round corner tiles, and two bright green 1x1 quarter round tiles. Begin by navigating to the microscale city at the rear right of the display, then move forward to find the row of studs in front of the city. Move one row forward and find the left end of the row, beside the curved slopes. Take the 1x4 plate and place it vertically here – there should be two studs between its front end and the area tiled in the last two steps. To the right of the front end of the plate, connect a 2x2 round corner tile so it curves back moving from left to right. Next, put a 1x1 quarter round tile in the inside corner of the round tile. Behind the tiles, put the 2x3 tile horizontally. To the right of the 2x3 tile, add the second 2x2 round corner tile so it curves back moving left to right, then put the 1x1 quarter round tile in its inside corner. We now have a place for the garden!

116. Set the display to the side while we build the garden separately. Find two medium nougat 1x2 bricks with single side stud and orient them horizontal so the side stud faces you. Stack one on top of the other.

117. Locate a medium nougat 1x2 brick with 1x2 side studs and stack it on top of the assembly with the side studs facing front. Next, take a green 1x1 round brick with side stud and connect it to the left stud on top of the part so the side stud faces forward.

118. Take a medium nougat 1x2 curved slope with recessed stud and orient it horizontally with the stud to the left. Place the stud on top of the round brick placed previously. Then, cover the stud with a medium nougat 1x1 tile.

119. Seek out a bright green flower with bar – this piece is about the size of a 1x1 plate and has seven petals. Hold it with the bar beneath and insert the bar into the side stud of the 1x1 brick at the top of the assembly.

120. Reorient the part on its side horizontally so the side studs face up and the curved slope lies to the right. Next, find a yellowish green 1x1 round plate, a bright green plant stem with three leaves, bar and small pin hole, a bright light yellow flower with five petals and small pin, and a green round flower with open stud. Take the round flower, connect the 1x1 round plate to its stud, and place the part on the front stud to the left of the flower with bar placed previously. Next, take the flower with five petals and insert the small pin on its underside into the small pin hole at the top of the stem piece. Insert the bar of the stem into the stud to the left of the previously placed part.

121. There is one remaining piece in group 4, a brown flower stem with bar and three short stems. Set it to the side, then retrieve group 5 and collect three white 1x1 round flower plates, three white round flowers with open studs, and a brown flower stem with bar and three long stems. Use the pieces to assemble a part:
121.1. Insert the bar of the short stem piece into the bar holder in the center of the long stem piece.
121.2. Take the round flowers and insert the ends of the long stems into their bases from beneath.
121.3. Put a flower plate on the stud of each round flower.
121.4. Insert the bar at the base of the part into the rear stud of the garden, which is surrounded on three sides by the previously placed plant parts.

122. Get four black 1x1 bricks with recessed side stud and a dark orange 1x4x3 window element. The window element has a rounded top, four panes, and a sill. Orient the window element vertically with the sill to the right, then orient the 1x1 bricks so their side studs face up and their regular studs face right. Connect the bricks underneath the window element, then add the part to the model by connecting the exposed studs of the rear two bricks to the left end of the garden assembly.

123. Collect a medium nougat 1x1 tile, a medium nougat 1x2 plate, a medium nougat 1x2 curved slope with recessed stud, and a green 1x1 round brick with side stud. Create a part:
123.1. Hold the 1x2 plate horizontal and connect the round brick to the left stud so the side stud faces you.
123.2. Orient the curved slope with the recessed stud to the left and connect the stud on top of the round brick. Then, cover the stud with the 1x1 tile.
123.3. Reorient the part on its side with the anti-studs on the base facing left and the side stud facing up. Connect it to the side studs under the window element.

124. Locate three bright green flowers with bar and small pin hole and a bright green stem with bar and three short stems. Insert a short stem into the bases of the bars of the flowers to create a plant. Add it to the build by inserting the bar at the base of the stem into the front stud of the garden module.

125. Finally, gather the remaining parts, which are a green 1x1 round plant plate with three leaves, a green 1x1 round plate with angled bar beneath, a yellow 2x2 round flower, a black 1x1 hair tuft, and a dark green 3L bar. Use the pieces to create a sunflower:
125.1. Hold the 1x1 plant plate with three leaves upside-down so the stud faces down and the leaves lie to the right. Take the 1x1 plate with angled bar and attach the stud of the bar plate to the anti-stud of the plant plate so the bar points in the same direction as the front leaf of the plant plate.
125.2. Insert the angled bar into the hollow stud of the 2x2 round flower from below, then place the hair tuft on the stud of the flower.
125.3. Lastly, insert the bar into the hollow stud of the plant plate with three leaves from below.
125.4. Add the sunflower to the garden by inserting the base of the bar into the stud in the rear left corner of the assembly.

126. The garden is complete and can be added to the display! Locate the 1x4 plate placed to the right of the center of the display and connect the left end of the garden module to the studs. The garden should sit on top of the tiles laid earlier.

The garden is densely packed with many different plants. The print instructions contain the following information: “George Washington Carver is attributed with creating 325 uses for peanuts, 108 applications for sweet potatoes and hundreds more for soybeans and pecans.”

The remaining pieces from the fifth bag will be used to create a model carbon atom. The pieces for this assembly are split across two groups labelled 6A and 6B. Group 6A contains all the parts for the carbon atom except the blue and dark azure pieces, which are to be found in group 6B. This is to assist you in distinguishing between colors.

127. Retrieve group 6A and take out a trans-orange 1x1 round plate with hollow stud and a light grey ring with three bars and three bar holders. Place the round plate on the stud in the middle of the ring.

128. Find a second light grey ring and connect it to the round plate so that the bars sit above the lower bar holders and the bar holders sit above the bars of the lower ring piece. Then take a second trans-orange 1x1 round plate with hollow stud and put it on the ring’s stud.

129. Locate a light grey 2x2 round tile with silver capital C on a black background. The tile portrays the chemical symbol for carbon, which is a capital print letter C. The tile has a stud holder underneath – connect it to the 1x1 plate previously placed, orient so that it is readable with a bar holder directly under and in front. You may wish to ask for assistance orienting the printed tile.

130. Collect three orange 1L bar with tow ball pieces and three black 1x1 round plates with clip underneath from group 6A and three dark azure Technic ball joints from group 6B. Use them to make three identical parts:
130.1. Take a clip plate and connect a Technic ball to the stud.
130.2. Grab a 1L bar and clip it into the part from beneath so that the clips sit right next to the tow ball at one end of the bar.
130.3. Repeat the above steps to obtain three identical parts. Add them to the model by inserting the ends of the bars of the parts into the bar holders of the bottom ring piece, ensuring that the Technic balls are kept upright.

131. Gather the following pieces: a black 6L bar with stop ring, a black 1L bar with clip, a black Technic bush, a black Technic axle connector hub with two perpendicular bar holders, and a black 7x7 ring with axle connectors. Use them to make a part as follows;
131.1. Hold the 6L bar upright with the stop ring toward the bottom, then slide the bush onto the bar at the top and slide it down until it meets the stop ring.
131.2. Take the axle connector hub and slide it down the bar to sit on top of the bush.
131.3. Orient the ring piece with the axle connectors at the top and bottom, then insert the top of the bar into the lower axle connector from beneath. Do not push it all the way through. Get the 1L bar with clip and insert the bar into the upper axle connector from above. Orient the clip so that a bar held by the clip would lie horizontally. We will use the clip to secure a second ring in a future step.
131.4. Retrieve the rest of the carbon atom and orient it upright so the printed 2x2 tile in the center faces you with two Technic balls below and one above. Between the bottom Technic balls is a bar holder – position the part in the center of the ring, then push the bar under the ring up and into the bar hole to secure it in place. This is an especially tricky step, so take your time.

The carbon atom is really taking shape! The assembly in the center represents the nucleus of the atom, while the ring provides connection points for the electrons.

132. Take a dark azure 1L bar with tow ball from group 6B and insert the bar into the hollow stud at the rear of the core. Push it all the way in – this creates a strong connection!

133. Collect the following pieces: three orange Technic tow balls and three black 1x1 round plates with clips underneath from group 6A, and two dark azure 1L bars with tow balls from group 6B. Use the pieces to make some parts as follows:
133.1. Begin by taking the Technic balls and connecting each to the stud of a clip plate. Connect one of the parts to the bar directly under the carbon atom’s core, underneath the printed 2x2 round tile.
133.2. Take the remaining two parts and clip the bars with two balls into the clip plates son that the clips are right next to the tow balls.

133.4. Add the parts to the model by inserting the bar ends into the bar holders above and to the sides of the 2x2 printed tile.

134. Find the black 25L rigid hose element. Despite its name, this piece is designed to be flexible enough to be bent into a curved shape. We will use it to form a second ring around the carbon atom, complementing the 7x7 ring around the core. Insert one end of the hose into the left bar holder under the 7x7 ring. Then, coax the hose into a curve that arcs over and around the 7x7 ring, attaching to the clip at the top and finishing with the other end of the hose being inserted into the right bar holder. Try to keep the hose equidistant from the inner ring along its length to make the ring as close to circular as possible.

135. All that remains is to place the six blue 1x1 round plates with clip underneath left in group 6B. Connect one to the inner ring halfway up the left side, and place another on the right. Put the remaining four clip plates around the outer ring equidistantly to form a square.

The model carbon atom is complete! The print instructions include the following note: “The 3D replica of a carbon atom – on which all life on Earth is based – contains six neutrons, six protons and six electrons.”

The protons are represented by the orange Technic ball joints and 1L bars with tow balls, while the neutrons are represented by the medium azure Technic balls and tow ball bars within the core (one of the neutrons is hidden at the back!). The electrons are represented by the blue clip plates attached to the rings and are arranged according to their energy levels with two in the lower energy state and four in the higher energy outer band.

136. Add the carbon atom to the model by inserting the bar at the base of the atom into the top of the upright Technic connector in the middle of the display. Turning the wheel at the back of the base causes the carbon atom to rise and fall while the DNA strand spins behind it!

You have come to the end of the fifth bag. Bag 6 contains the pieces to build a miniature robot arm and a fully equipped laboratory.

Open bag 6 and retrieve the first group of bricks. Begin by building the minifigure of Madame Curie: collect the dress slope piece and orient it with the sloped side to the rear, then connect the torso on top. Add the head to the neck, then take the hair element and place it on the stud on top of the head. Next, take a trans-clear flask with trans-bright green fluid pattern and clip it into the minifigure’s right hand. Finally, collect a glow-in-the-dark 1x1 tile printed with the chemical symbol for radium and clip it into the minifigure’s left hand.

The minifigure of Marie Sklodowska Curie is wearing a long black dress with grey detailing on the torso and a silver chain around her neck. Her dark blonde hair is tied up in a bun. Her face shows a determined smile, while the alternate face on the back of her head shows shock and worry – perhaps she has just understood the ramifications of her discoveries? In one hand she holds an Erlenmeyer flask filled with a bright green translucent liquid, and in the other holds a tile printed with the chemical symbol for radium, an element she discovered, as it appears on the periodic table. The tile is glow-in-the-dark, referencing radium’s radioactivity.

The print instructions contain the following information about Marie Curie: “Pioneering Polish chemist Marie Curie (nee Sklodowska) (1867-1934) is considered the mother of modern physics for her groundbreaking work with radium and radioactive materials. She became the first woman to win the Nobel Prize – and the only person to win two!”

137. Find a black 2x2 turntable base plate and a light grey 2x2 round turntable top plate. Put the top plate on the bottom plate and press them together until you hear a click. Then, navigate to the leftmost column of studs on the model’s base and add the turntable one stud to the right of the left edge and three studs back from the front. It should not overhang the curved slopes to the left.

138. Obtain four black 2x2 corner tiles with cut corners. Use the pieces to surround the turntable, creating an octagonal border around the turntable.

139. The rest of the pieces in group 1 are to be used here. Those pieces are: a white 1x2 ingot element, a white 1x1 inverted bracket with single side stud, a white 1x1 bracket with single side stud, a white 1x1 round tile with upright bar, a white 1x2 sloped tile, a white 1x2 slope with cutout, a black 1x2 inverted slope with stud cutout, a black 1x1 round brick with clip underneath, a black 1x1 plate with vertical clip, a black 1x2 plate with bar handle on side, a black round 1x1 brick with side stud, a black 2x2x2/3 ribbed brick, and a black 2x2 bracket with centered 1x2. Use the pieces to create a robot arm as follows:
139.1. Orient the 2x2 bracket with centered 1x2 so the studs of the 1x2 face left. Put it on top of the 2x2 ribbed brick.
139.2. Collect the 1x2 sloped tile and connect it vertically to the 1x2 of studs facing left. The bottom left edge of the slope should align with the left edge of the 2x2 bracket. Next, take the 1x2 plate with bar handle on side and orient it vertically upright so that the studs face left and the bar handle is on top. Connect it to the right of the 1x2 sloped tile.
139.3. Make a sub-part: orient the 1x1 plate with vertical clip horizontally with the clip to the right, then connect the 1x2 inverted slope on top of the stud so the slope overhangs to the right, directly above the clip. Next, take the 1x2 slope with cutout and hold it horizontal with the sloped end to the left and put it on top of the inverted slope. There should be no free studs remaining on the subpart. Reorient the subpart so it is upright with the clip pointing down and the slopes to the right, then clip it to the middle of the bar handle at the top of the assembly. Lastly, swing it to the right as far as possible – the anti-stud of the clip plate should face up and to the left.
139.4. Take the 1x1 bracket and orient it with the side stud to the right, then put the 1x1 inverted bracket on top with its side stud facing left. Add it to the assembly by connecting the right side stud to the anti-stud of the clip plate placed previously.
139.5. Find the 1x1 round brick with side stud and hold it with the side stud to the left. Then, take the 1x1 tile with upright bar and insert the bar into the side stud. Get the 1x1 round plate with clip underneath and connect the stud to the anti-stud of the tile so that the clip is at a 45 degree angle to the vertical – a bar held by the clip would slope down toward you. Add the part to the side stud of the bracket so that the part faces diagonally down and left.
139.6. Finally, complete the robot arm by placing the ingot horizontally on the top stud of the bracket. The right end of the ingot should connect to the stud.
To complete the robot arm, first locate the stud on top of the right section of the robot arm – the stud faces diagonally up and right, sitting in the center of the arm directly above the clip and bar connection that allows the arm to bend. Once you have found the stud, take the white ingot element and hold it horizontally, then connect its right end to the stud.
139.7. Add the robot arm to the display by connecting the base to the turntable placed previously. Turn it so the arm is reaching toward the front left corner.

Set the display to the side while we build the laboratory. The next group contains the pieces to build up the structure of the lab bench.

140. Collect the second group of pieces and find a brown 2x2 modified plate with 1x2 horizontal side studs. Orient it with the studs in front.

141. Get a second brown 2x2 modified plate with 1x2 horizontal side studs and place it next to the first with the side studs facing forward. Then, take a brown 1x2 pile and place it on the middle two studs of the rear row.

142. Find two brown 2x2 corner tiles. Orient the first with the cutout in the front right and connect its back right to the back left stud of the assembly. Add the second piece symmetrically to the right.

143. Get two brown 1x2 inverted brackets with 1x2 horizontal side studs. Orient one with its side studs facing right and connect it under the overhang of the right corner tile placed previously. Place the second bracket symmetrically at the left end.

144. Obtain two brown 1x2 sloped tiles and place them on the side studs of the brackets previously placed so that their flat sides face up.

145. Flip the assembly upside-down so the side studs are in the rear. Locate the brown 2x2 inverted tile, which has a 2x2 of studs and a smooth underside. Orient it with the studs facing down and apply

sticker number 4 to the flat surface. The sticker portrays a shelf stacked with books, a statue, and a fossil of a trilobite, an extinct crustacean. Attach the inverted tile to the center of the assembly.

146. Gather the following pieces with which to make a part: a dark brown 1x3 plate, a brown 1x1 plate, a brown 1x1 brick, two brown 1x2 modified bricks with 1x2 side studs, and a brown 1x4 hinge plate with swivel in the middle. Construct the part as follows:
146.1. Open the hinge plate fully and orient it horizontally with the ‘bump’ of the hinge in the rear. (The ‘bump’ is where the axis of the hinge is located, and feels like a small, rounded protrusion in the middle of one of the long sides of the fully open hinge.) Swing the left end of the hinge to the right so it forms a 45 degree angle to the horizontal. Put a 1x2 brick horizontally on the left pair of studs so the side studs face diagonally forward and to the left.
146.2. Place the second 1x2 brick on the right pair of studs with the side studs facing forward.
146.3. Connect the 1x3 plate horizontally under the right end of the hinge plate so it juts out to the right by one stud.
146.4. Put the 1x1 plate on the exposed stud of the 1x3 plate.
146.5. Place the 1x1 brick on top of the 1x1 plate.
146.6. The part is complete. Retrieve the rest of the assembly and orient it with the anti-studs facing you and the side-studs along the top. To add the finished part to the model, first turn it 180 degrees so the side studs face away from you, then connect the side studs at the right to the upper row of the left end of the assembly, beside the 2x2 inverted tile. The top studs of the part should be level with the top of the top of the lab bench.

147. Next we will create a second part which is the mirror image of the first. Collect a dark brown 1x3 plate, a brown 1x1 plate, a brown 1x1 brick, two brown 1x2 modified bricks with 1x2 side studs, and a brown 1x4 hinge plate with swivel in the middle. Construct the part as follows:
147.1. Open the hinge plate fully and orient it horizontally with the ‘bump’ of the hinge in the rear, then swing its right end to the left so it forms a 45 degree angle to the horizontal. Put a 1x2 brick on the right pair of studs so the side studs face diagonally forward and to the right.
147.2. Place the second 1x2 brick on the left pair of studs with its side studs facing forward.
147.3. Connect the 1x3 plate horizontally under the left end of the hinge plate so it protrudes left one stud.
147.4. Put the 1x1 plate on the exposed stud of the 1x3 plate.
147.5. Place the 1x1 brick on top of the 1x1 plate.
147.6. To add the part to the model, rotate it 180 degrees so the side studs face away from you and connect the left set of side studs to the right of the 2x2 inverted tile. The top studs of the part should be level with the top of the top of the lab bench.

148. Gather the remaining pieces from the group, which are: two brown 1x2 plates, two brown 2x2 tiles, two brown 1x2 sloped tiles, four brown 1x2 inverted brackets with 1x2 side studs, and two brown 1x2 doubled-curved slopes. Create two identical parts as follows:
148.1. Take a 2x2 tile and put it in front of you.
148.2. Next, put a 1x2 bracket vertically under the left column of the tile with the side studs to the left. Find another and place it symmetrically under the right column.
148.3. Locate a 1x2 sloped tile and connect it vertically to the left side studs so the flat face points up.
148.4. Add a 1x2 plate to the right set of side studs vertically.
148.5. Finally, put a 1x2 double-curved slope vertically on the plate previously placed.
148.6. Repeat the above steps to obtain a second part. Take one of the completed parts and orient it so the anti-studs face you and the sloped tile is to the right, then attach it to the side studs at the rear of the left right hinged section by connecting the top row of the part to the side studs. The top of the part should be level with the studs on top of the hinged section, and the sloped tile should meet the sloped tile at the left end of the center console. Place the other part symmetrically to the left hinged section.

149. Get the next group of parts and extract a black 1x2 plate, a black 1x4 plate, a black 1x2 jumper plate, three 2x2 right wedge plates, and three 2x2 left wedge plates. Begin by taking a right wedge plate and orienting it vertically with the angled edge to the left. Connect its front stud to the left stud of the left hinged section. To the right, add the jumper plate vertically, then a left wedge plate vertically with the angled edge to the right. Collect a second right wedge and place it vertically with the angled edge to the left on the stud to the right of the previous piece. Next, find the 1x4 plate and place it horizontally along the back row to the right of the wedge. Then put a left wedge vertically to the right

with the angled edge to the right. Add the remaining parts to the right hinged section in a manner similar to the left hinged section: put the right wedge vertically on the stud to the right of the previous piece with the angled edge to the left, then connect the 1x2 plate vertically to the right, and finally place the last left wedge plate vertically to the right with its angled edge to the right.

150. Locate another black 1x4 plate and stack it horizontally on top of the first, covering the centered 1x4 of studs on the rear row of the central section. Get two brown 1x1 tiles and place one to the right and one to the left of the plate.

151. Collect two brown 1x1 modified tiles with upright clips and orient them so a bar held by the clips would lie horizontally. Place the clip tiles on the middle two studs of the 1x4 plate placed previously.

152. Take a black 1x4 panel and place it horizontally in front of the clips with the wall in the back.

153. The last piece in the group is a purple 1x2 tile – keep it to one side for the coming step. Retrieve the next group of pieces and find a blue 1x2 tile, a light bright blue 1x2 plate, a dark blue 1x2 plate with rail, two brown 1x1 inverted brackets with 1x2 vertical side studs, and two black 1x1 double-curved slopes. Use them to make a pair of parts representing books:
153.1. To make the first part, begin by orienting a bracket with its side studs facing left and put a double-curved slope on its upright stud so one flat side is against the bracket and the other faces right. Then, connect the light bright blue 1x2 plate to the side studs vertically, followed by the purple tile. Place the part to the left of the clips in the middle of the central console.
153.2. To build the second part we will follow a similar route: start by orienting the second bracket with its side studs to the right, then put a double-curved slope on the upright stud so its flat faces lie to the left and right. Then, collect the dark blue 1x2 plate with rail and connect it vertically to the side studs of the bracket with the rail in front. Place the blue 1x2 tile on the studs of the rail plate to finish the part. Add it to the assembly to the right of the clips.

It appears some books have been leant against whatever is meant to occupy the middle of the workbench.

154. Next, construct a microscope. Gather a light grey 1x1 tap, a white 1x1 round plate with hollow stud, a white 1x1 round plate with bar handle to the side, a white 1x1 plate with vertical clip, and a trans-clear 1x1 round tile with cell culture in petri dish pattern. The tile has light blue, dark turquoise and white blobs in it which look similar to how bacterial cultures are grown in petri dishes. Use the pieces to construct the microscope as follows:
154.1. Orient the round plate with bar handle with the handle to the left, then put the 1x1 tile on its stud.
154.2. Hold the clip plate upright with the stud facing left and the clip beneath, then connect the clip to the handle of the part.
154.3. Connect the 1x1 round plate to the anti-stud of the clip plate.
154.4. Orient the tap piece with its anti-stud facing up and the nozzle pointing left. Insert the nozzle into the hollow stud of the 1x1 round plate placed previously.
154.5. Add the microscope to the bench by placing it on the stud of the jumper plate in the center of the left angled section.

155. The last pieces in the group are a black 1x2 bracket with 1x2 side studs and a brown 1x2 modified tile with bar handle. Attach the modified tile to the side studs of the bracket so it slopes down and away from the bracket, then orient the part upright with the studs facing you and the bar handle beneath. Clip the bar handle into the clips in the middle of the central console.

156. Get the final group of pieces for this bag. Gather the following parts: a tan 1x2 plate, a tan 1x2 grille tile, a tan 2x2 inverted tile, a tan 2x2 bracket with centered 1x2, and a tan 1x2 curved slope. Use them to build a computer:
156.1. Orient the 2x2 bracket with the side studs facing right and connect the 1x2 plate across them.
156.2. Put the grille tile on the 1x2 plate placed previously.
156.3. Take the 2x2 inverted tile and orient it studs-down. Apply sticker number 1 to the flat surface. The sticker shows a green computer screen with a pixelated moon, in front of which a spacecraft zooms by. Reorient the inverted tile upright with the studs facing away from you and rotate the rest of

the computer 90 degrees so the anti-studs of the bracket's centered 1x2 face you. Connect the bottom row of the inverted tile to the anti-studs of the bracket.
156.4. Hold the 1x2 curved slope on its side with the anti-studs facing you and the flat side facing down. Connect it to the top row of the inverted tile.
156.5. The computer is a very old model with a large monitor that has a curving top and a vent at the back to air-cool the processor. The little bit of bracket poking out below the screen may represent a keyboard. Add the part to the model by placing it on the left 2x2 of studs of the right angled section of the lab.

157. The majority of the remaining pieces are very small: a pearl gold 1x1 round tile with upright bar, a trans-clear 1x1 pyramid piece, a tan 1x1 half-round tile, a white feather plume, and a trans-clear 1x1 round tile with cell culture in petri dish pattern. Use them to add a few little details to the laboratory:
157.1. Put the tan 1x1 half-round tile on the front stud to the right of the computer to represent a mouse. Ensure the rounded side faces out from the desk.
157.2. Place the trans-clear 1x1 round tile with cell culture pattern on the front stud to the left of the microscope on the left hinged section. Perhaps a scientist is comparing samples?
157.3. To the right of the microscope, put the trans-clear pyramid. Perhaps it's just a paperweight, but could it be the prism that Newton used to split white light into a spectrum of colors?
157.4. Insert the small pin at the base of the plume into the small pin hole at the top of the upright bar of the 1x1 round tile. Using only two pieces, it forms a very convincing inkwell! Put it on the stud to the right of the pyramid.

158. Connect the laboratory to the display by placing it on the tiled section in the front center of the build. There are two horizontal 1x2 plates protruding up from the tiles: place the central console over the plates so they sit under the hinge plates, then push down on the lab to connect it.

159. The lab isn't quite done yet! Take the 4x4 tile and apply sticker number 2 to its surface. The sticker depicts a blackboard, with a dark green board covered in white chalk diagrams and scribbles. The graphic prominently features the golden ratio phi, an irrational number which has the approximate value of 1.618033, as well as a diagram of a peanut plant. Connect the chalkboard to the model by connecting the bracket hinged above the center of the lab to the middle of the back row of the tile.

The print instructions provide the following information: "The Golden Ratio phi, often referred to as the most beautiful number in the universe, is derived from the Fibonacci numbers and is visible almost everywhere in nature, from the constructions of cells to the orbit of planets."

You have reached the end of bag 6. The seventh bag is the final bag of the set and contains pieces to build a miniature Voyager 1 probe, a model space shuttle, and a large bumble bee.

160. Collect the first group of bricks for bag 7 and take out a black 2x2 round jumper plate and a black 2x2 inverted dish. Navigate to the rightmost column of studs of the model, then move one row back. Place the jumper plate here so it fully connects to the studs and does not overhang the slopes to the right. Then connect the dish to the stud of the jumper.

161. Find a trans-clear 1L bar with angled hollow stud and a pearl gold 3x3 round tile. Take the tile and apply the final sticker of the set, sticker number 3, to the surface of the tile. The sticker depicts the details on the cover of the golden disc that was sent into space aboard the Voyager 1 probe by NASA, which includes pictorial instructions for how to play the record, a diagram defining the location of our sun in the universe, instructions on accessing the images, and a diagram of a hydrogen atom. Attach the stud of the 1L bar to the center of the disc's underside, then attach the record to the display by inserting the bar into the hollow stud of the inverted dish placed previously. Position the record so it faces front-right, out and away from the display.

162. Set the display to the side while we built a model of the Voyager 1 space probe. Begin by gathering the remaining pieces from the first group: a light grey ring with 3 bars and 3 bar holders and open stud in the center, a black minifigure harpoon, a black 1x1 round plate with bar handle underneath, two black bars with a clip at one end and a stud at the other, a flat silver 3x3 inverted dish, two flat silver bar holders with clips, a pearl gold 1x1 round tile with upright bar, a pearl gold 6L bar with stop ring, and a trans-clear curved bar with 1L axle at one end and a 1x1 round plate at the other. Use the parts to construct the spacecraft as follows:

162.1. Take the 3x3 inverted dish and connect the ring piece to the stud. Orient the part so a bar holder faces you.
162.2. Collect the 6L bar with stop ring and hold it vertical with the stop ring away from you. Insert the far end into the bar holder facing you. Then, find the minifigure harpoon and hold it upright with the point beneath. Insert the bar of the harpoon into the stud of the inverted dish from below and push it all the way through so that it passes through the ring piece and protrudes above the assembly.
162.3. Find the two bar holders with clips and use the clips to attach them to the middle of the bars of the ring piece on either side of the 6L bar. Angle them down slightly. Next, take a bar with clip at one end and stud at the other and orient it vertically with the clip toward you and the stud facing left, then clip it to the rear bar of the ring element. Collect the 1x1 round tile with upright bar and insert the bar into the bar holder to the right of the previously placed piece.
162.4. Locate the second bar with clip and stud and attach the 1x1 round plate with bar handle underneath by joining the clip to the bar. Attach it to the model by placing the stud of the bar onto the upright bar protruding from the middle of the probe. Orient the bar and clip assembly so it points away from the model and lies between the 6L bar and the bar holder with clip to its right.
162.5. Collect the curved bar and orient it so the axle points away from you and the bar curves toward you when moving from left to right from the axle to the studs. Insert the bar end into the unoccupied bar holder of the ring element at the back left.
162.6. To add the spacecraft to the display, first reorient the assembly so the point of the harpoon faces you, then insert the axle end of the curved bar into one of the Technic connectors between the third and fourth rungs from the top of the DNA strand. The clear bar creates the illusion that the model is floating in the air.

The Voyager 1 probe is complete! The print instructions contain the following information on the iconic craft: “The NASA Voyager 1 probe is the farthest human-made object from Earth and the first spacecraft to reach interstellar space. The ‘Golden Record’ aboard the Voyager probes feature audio greetings from Earth in 55 languages, as well as a selection of music and sounds from nature.”

163. Open the second group of bricks and take out a red 1x1 round tile with upright bar, a red half-pin with friction ridges, and a trans-clear 1L bar with angled hollow stud. Construct a part by inserting the bar of the round tile into the stud of the half-pin, then connect the stud of the 1L bar to the anti-stud of the round tile. This part will serve as a connection point for the model space shuttle. Add it to the display by inserting the pin into the empty pin hole at the top of the DNA strand which is nearer to the Voyager 1 model.

Set the display to the side while we focus on constructing a model space shuttle. We will begin by constructing the wings.

164. Find a black 3x6 wedge plate with two cut corners and a white 2x2 plate. Orient the wedge plate vertically with the cut corners to the right, then put the 2x2 plate so it covers the right column of studs and some of the middle column.

165. Collect a white 2x3 left wedge plate, a white 2x3 right wedge plate, a white 1x2 left wedge tile, and a white 1x2 right wedge tile. Orient the left wedge plate vertically with the studs to the right and place it on the rear three studs of the left column of the part. Next, hold the right wedge tile vertically pointing back and connect its front to the stud to the right of the 2x3 wedge and behind the 2x2 plate placed in the previous step. Add the other two pieces symmetrically at the front of the assembly.

166. Locate a white 2x4 brick and a white 3x4 wedge plate. Orient the wedge with its studs to the right and connect the brick horizontally to the studs so it overhangs to the left. Add the part to the model by connecting the overhang of the 2x4 to the 2x2 of studs on the right side of the assembly. The collection of wedges placed in the last few steps have built up a neatly angled pair of wings.

167. Bring the two black 1x3 inverted tiles and orient them horizontally. Connect them under the wedge at the right side of the build so that they protrude to the right by one stud.

168. Now we can start to build up the front of the shuttle. Get the black 1x2 brick with side stud and the trans-clear 1x2 half-round tile. Place the brick vertically with the side stud facing right on the exposed studs of the inverted tiles placed previously, then stack the tile vertically on the brick with the flat edge to the left. The clear tile represents the glass of the craft’s cockpit.

169. Collect two white 1x1 sloped tiles, two white 1x2 sloped tiles, and a white 2x2 double-curved slope. Place the double-curved slope vertically on the 2x4 brick's right column of studs so it overhangs the half-round tile placed previously. To the left, place a 1x2 sloped tile horizontally on the front row of the brick with the sloped face toward you, then put a 1x1 sloped tile to the left with the sloped face toward you again. Place the other two sloped tiles symmetrically on the rear row of the brick.

170. The last two pieces in the group are a black 2x2 cone and a black 1x1 round tile. Use them to create the shuttle's nose: put the round tile on the stud of the cone, then insert the side stud at the right end of the model into the stud holder in the center of the cone's underside.

171. Retrieve the next group of bricks. We will use these pieces to create engines and a tail for the space shuttle. Begin by reorienting the shuttle so the nose of the spacecraft points away and the wedge plates that make up the back of the wings lie in front of you. Note the 1x6 of horizontal studs. Take two white 1x1 round bricks with side stud and put them on the middle two studs of the row with the side studs facing you. Angle the side studs slightly away from the center.

172. Collect a white 1x2 brick with side stud and orient it horizontally with the side stud toward you. Put it on top of the previously placed round bricks. Note that the side studs of the pieces just placed are all hollow, so they will accept a bar.

173. Gather three dark grey 1x1 round tiles with upright bars and three flat silver 1x1 cone pieces. Use them to construct three engine nozzles: put a round tile on the stud of each cone, then insert the bars on top into each of the three hollow studs from the previous step.

174. The last piece of the group is a white shuttle tail. Place the base of the part horizontally on top of the 1x2 brick.

175. The shuttle is complete! To add it to the build, locate the angled bar at the top of the DNA strand and insert it into the hole in one of the inverted tiles that make up the underside of the shuttle.

The print instructions include the following information on the space shuttle: "The space shuttle celebrates humankind's pioneering spirit to explore not just our own world but the entire universe, and marks incredible achievements and discoveries with manned spaceflight."

The final build of the set is a bumblebee.

176. Start by getting the penultimate group of pieces and extracting a black 1x2 slope with cutout and a white 1x1 plate with thick ring. Orient the slope horizontally with the stud to the right, then place the 1x1 plate on the stud so the thick ring lies to the right.

177. Get a bright light orange 1x1 tile and put it on the stud of the plate.

178. Gather two white 1x1 plates and two white 1x1 sloped tiles. Make a pair of parts by stacking a slope on each plate. Orient the parts on their sides so that the flat end of the slope faces down, then connect one to each side of the thick ring.

179. Flip the assembly along its length so the anti-studs face up and the thick ring remains at the right end of the model. Find a black minifigure blaster weapon with studs on all sides and hold it upside-down so the bar is on top and lies to the left. Connect the studs under the piece to the anti-studs of the assembly. This addition creates many new connection points with which to build up the bee!

180. Collect a pair of black 1x2 plates with bar handles at one end. Orient the pieces horizontally with the bar handles to the right and connect them to the front and back side studs of the previously placed part.

181. Find two light bright orange 1x2 curved slopes. Orient one upright with the anti-studs facing away and the thinner end at the bottom. Connect the top of the piece to the right stud of the previously placed piece at the front of the assembly. Then put the second slope symmetrically at the rear.

182. Locate a black 1x2 left curved wedge slope and a black 1x2 right curved wedge slope. Orient the right wedge upright with the anti-studs facing away and the pointed end below and place it to the left of the front curved slope placed in the last step. Put the right wedge symmetrically at the rear.

183. Obtain a black 1x1 brick with side studs on opposite sides and a black 1x1 round plate with clip underneath. Orient the brick upside-down with the side studs in front and back and place it to the right of the bar sticking up from the assembly. Connect the clip stud to the anti-stud of the brick so that a bar held by the clip would lie vertically.

184. Take two 1x1 round plates with bar handle and hold the first on its side with the stud facing you and the handle to the right. Affix it to the front side stud of the previously placed brick, then angle the bar roughly 30 degrees from the horizontal – we will use the bar to attach a leg, which we would like to be at an angle to the rest of the body. Place the second round plate symmetrically to the rear side stud.

185. Get a light bright orange 1x1 quarter-round tile and orient it on its side with the flat face toward you and the right angle in the lower left. Put it on the front 1x1 round plate with bar handle placed in the previous step. Then get a second tile and place it symmetrically on the rear round plate.

186. The remaining pieces in the group are four black horns and four black bar holders with angled clips. Use them to make four legs: insert the bar at the base of a horn into each of the bar holders so that the horn curves away from the clip. Attach the clips at the base of the legs to the bar handles on either side of the abdomen so the spiky tips point up and toward you – there are two bar handles on each side of the abdomen.

187. Collect the final group of parts of the set. Take a brown 1x1 brick with studs on all sides and a bright light orange 1x1 tile. Orient the brick upside down and put the tile on the side stud facing left, then add it to the assembly by sliding the bottom stud of the part onto the angled bar at the left end of the bee's body.

188. Find two black 1x1 round bricks with side stud and attach them to the front and back side studs of the previously placed brick so their side studs face left.

189. Locate a black 1x1 round plate with bar underneath. Orient the part upside down with the bar vertical and connect it to the anti-stud of the 1x1 brick between the round bricks placed previously.

190. Gather two black angled claws with clips and a black minifigure handlebar element. Use them to make a part: orient the handlebar vertically with the ends of the handlebars angling down, then clip a claw to the bar at the front and back ends so they stand upright and angle to the right. Add the part to the bee by clipping the central section of the handlebar into the clip in the top middle of the body. The claws form the third of the bee's three pairs of legs.

191. Next we will build the head. Collect together the following parts: a light bright orange 1x1 plate, a light bright orange 1x1 modified tile with clip, a brown 1x1 brick with studs on all sides, a black 1x1 double slope, a black 1x1 round plate with clip underneath, a black minifigure handlebar element, and a black 1x1 modified plate with tooth. Assemble the head as follows:
191.1. Take the 1x1 brick with studs on all sides and place the 1x1 plate on top.
191.2. Stack the 1x1 double slope on top of the plate so the sloped faces are at the sides.
191.3. Put the clip tile on the left side stud so a bar held by the clip would be vertical rather than upright. Also place the tooth plate on the right stud with the tooth upright.
191.4. Orient the handlebar piece vertically with the handlebar ends angling up and the central hub jutting out to the right. Connect the hub section to the clip tile at the assembly's left.
191.5. Hold the 1x1 round plate with clip underneath so a bar held by the clip would be vertical, then connect it to the underside of the assembly.
191.6. Attach the subassembly to the main build by connecting the clip on the underside of the part to the bar handle at the upper right end of the body. Swing the handlebar element up so it can act as the insect's antennae.

192. The bee needs eyes – find two black 1x2 half-round tiles and orient the first with the flat edge to the right. Connect the center of the tile to the front side stud on the head. Place the other piece symmetrically at the back of the head. The tiles do a good job of approximating the bee's compound eyes.

193. Turn the model so the head is away from you and note the presence of a hollow stud between the lowest pair of legs. Collect a trans-clear curved bar with axle at one end and round plate at the other and insert the bar at the plate end into the hollow stud. Twist the bar in place to get it to curve left.

194. To attach the bee to the display, first orient the bee with its head toward you and the curved bar underneath the body, then insert the axle at the far end of the curved bar into the axle connector that can be found near the top of the DNA strand, on the opposite side to the Voyager 1 probe.

195. All that is left is to add wings! The final pieces of the set are two black 1x2 half-round tiles and two trans-clear 1x2 round plant plates with rounded leaf. Make two parts: for the first part, orient a leaf plate horizontally with the studs to the right and place a half-round tile horizontally on the studs with the rounded edge toward you; for the second, orient the plant plate horizontally with the studs to the left and add the half-round tile to the studs with the round edge toward you. Place the first piece's right stud on the left stud behind the bee's head, then add the second symmetrically to the right. Swing the parts back so the wings lie closer to the body.

The print instructions have this to say about the bee: "The humble bumble bee is vital to maintaining a healthy global ecosystem and biodiversity."

Congratulations, you have completed the set! The finished display is an impressive and vibrant display piece, with dioramas, miniatures, and scenes erupting from the yellowed pages of an old hardback book. A lab occupies the front row, complete with microscope, chalkboard, and old home computer, perfect for Madame Marie Curie to study radioactive phenomena; to the right, a replica of the Golden Record which accompanied the Voyager space probes sits; to the left, a minifigure-scale robot arm. Behind the lab rises a model carbon atom with a cluster of orange and dark azure balls representing the protons and neutrons of the nucleus while blue studs sitting on rings surrounding the core represent the electrons orbiting the nucleus. To the left of the atom is a miniature of an old automobile, while on the right is a garden which pays tribute to the work of George Washington Carver and biology more broadly. Behind the garden is a microscale city resembling New York City. To the left, an apple tree provides shade for Sir Isaac Newton to contemplate mathematics, physics and optics. Rising above it all is a colorful Technic double-helix representing the foundation of all life on Earth: DNA. Models of the Voyager 1 probe, the space shuttle, and a bumble bee circle the DNA strand. A knob at the rear of the display can be turned, causing the DNA to spin and the carbon atom to rise and fall.

Thank you for building this set – we hope you enjoyed it!

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