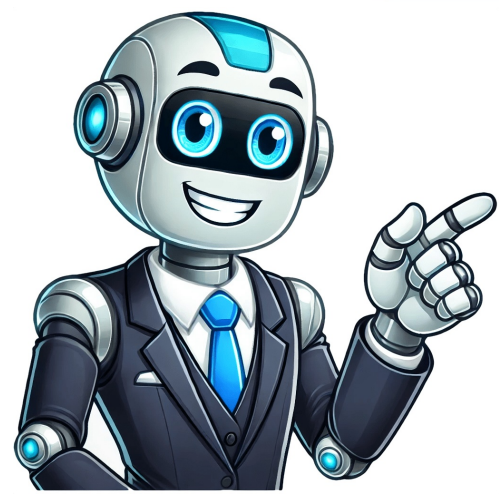


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The license may not give you all of the permissions necessary for your intended use. For example, other rights such as publicity, privacy, or moral rights may limit how you use the material. 1 Cut out a hole at one end of a styrofoam cooler. The hole will contain the light bulb and its socket. Insert the socket from any lamp and put in a 25 watt bulb.[1] Place duct tape around the hole and the socket from inside and outside the cooler. This is very important in order to reduce the risk of fire. You can also use a small box, but a styrofoam cooler works well because it is insulated. 2 Divide the cooler in two sides. Using chicken mesh or some other hard wire mesh, partition off the side of the cooler where the light bulb sits. Doing this is important to protect the chicks from getting burned. Optional: Create a false bottom using chicken mesh a little above the floor of the cooler. This will make cleaning out the chicken poop easier once the chicks hatch. Advertisement 3 Add your digital thermometer and humidity gauge. Place it on the side where the eggs will be. Since the main function of an incubator is to keep the temperature and humidity inside it at an optimal level, be sure that the thermometer/gauge has a high rate of accuracy.. 4 Add in a bowl of water. This will be your humidity source. Put in a sponge, too, so that you can adjust the amount of water easily. 5 Cut a viewing portal in the cooler's lid. Using the glass from a picture frame, determine how big the opening needs to be. It should be a little smaller than the dimensions of the glass. Then secure the glass by using duct tape to fasten it in the opening. Optional: Make a hinge for the cooler's lid by attaching it to one side of the top with duct tape. 6 Test the incubator. Before putting in the eggs, turn on the light and monitor the temperature and the humidity for a day or so.[2] Make adjustments to the heat and humidity until they are at optimal levels. The temperature should be kept at 99.5 degrees through-out the incubation. Optimal humidity varies: it should be between 40 to 50 percent for the first 18 days and 65 to 75 percent during the last four. To reduce the temperature, punch holes in the sides of the cooler. If it gets too low after you do that, tape up some of the holes with duct tape. For the humidity, sponge up some of the water to reduce it and squeeze out more water to increase it. EXPERT TIP Roger J. Lederer, PhD Ornithologist Dr. Roger Lederer is an Ornithologist and the founder of Ornithology.com, an informative website about wild birds. Dr. Lederer has spent over 40 years teaching, studying, and writing about birds. He has traveled to over 100 countries to study birds. Dr. Lederer is an Emeritus Professor of Biological Sciences at California State University, Chico, and has been a Department Chair of Biological Sciences and Dean of the College of Natural Sciences. He has written more than 30 research papers and 10 books on birds and a textbook entitled "Ecology and Field Biology." Dr. Lederer has consulted the BBC, National Geographic, National Public Radio, ABC News, the Guinness Book of World Records, and numerous other organizations and publications. Use a box and light bulb to incubate eggs. Recreate incubation conditions with an ordinary box, light bulb for warmth, and thermometer to monitor temperature. Maintain around 100°F while ensuring proper humidity levels, and bird eggs left alone have a chance to hatch. 7 Put in your chicken eggs. It's important to find fertilized eggs: store-bought eggs will not work. If you don't have any chickens and a rooster yourself, a good way to find fertilized eggs is to contact local farmers. Once you have your eggs, cluster them close together, as this helps them maintain a constant temperature. The quality of the eggs depends on the health of the chickens they came from. Therefore, before purchasing eggs from a farm, ask the manager if you can inspect the facility. Free-range hens are almost always healthier than caged hens. An optimal hatching rate is between 50 and 85 percent. Laying hens are usually smaller in size and are bred to produce eggs. Meat hens, on the other hand, are bred for size. They tend to be larger birds that grow relatively quickly. However, there are chickens that are bred as dual-purpose birds. Ask the farmers you contact which variety they breed. Advertisement 1 Keep track of time and vital statistics. Chicken eggs take 21 days to hatch, so it's important to know the exact day you put them in the incubator. Also, keep track of the humidity and temperature readings. 2 Rotate the eggs. Turn the eggs one quarter to half a turn three times daily for the first 18 days. You want to turn them so that one side faces down and the other up. Mark one side of each egg with "X" and the other side with an "O" to keep track of which side is facing up. 3 Candle the eggs after the first week. Candling allows you to detect infertile and bad eggs. It involves holding an egg against a bright light in a dark room to see inside. You can purchase a candling device, but for most situations, a small, bright flashlight will do. If you find any bad or infertile eggs, remove them from the incubator. If you use a flashlight, its lens should be the small enough so that the light is directed at the egg. Another way to make a homemade candler[3] is to insert a desk lamp inside a cardboard box with a small round hole cut at the top. Put the egg in this hole to candle it. You may have to gently turn the egg up and down or from side to side to better see its contents. A living embryo[4] appears as a dark spot with blood vessels radiating out from it. A dead embryo can show up as a ring or a streak of blood inside the shell. Infertile eggs light up bright and even since there is no embryo inside. 4 Listen for the sounds of the chicks starting to hatch. On the 21st day, the chicks will "pip" their shells in order to breathe after bursting the air sacks. Watch them carefully after this point. It can take up to twelve hours after "pipping" for a chick to fully emerge from its shell. If some of the chicks haven't concluded their hatching after twelve hours, go ahead and remove the tops of those eggs. Advertisement Add New Question Question How do I dry-hatch chicken eggs? Alexandra Doss Poultry & Livestock Expert Alexandra Doss is a Poultry & Livestock Expert expert based in Ruskin, Florida. She owns and manages Stellar Game Birds, Poultry, Waterfowl LLC, a selective breeding operation with game birds, poultry, and waterfowl. With over 14 years of experience, she produces strong genetics and health in her hatching eggs, eating eggs, and live birds. The farm is FWC game farm licensed, FDAC licensed for quail, chicken, and duck eating eggs and meat, and NPIP certified. She is known as the Quail Lady and has published several books on raising Coturnix. Her work has been featured in Mother Earth News, Backyard Poultry, Grit, The Chicken Whisperer Magazine, and Community Chickens. She also has a career as a Workforce Management Supervisor and has a certificate in project management. She received a BS from Oregon State in Animal Sciences. With dry hatching, you do not add water until the very end. The incubation period will be the same 21 days. However, the next day counts as day one, and the original day counts as day zero. It is important to know that this method doesn't work in every single environment; for example, in Florida, where the humidity is higher, dry-hatching isn't something that works, while it would be easier in Oregon because it's a drier climate. Dry hatching is really climate-dependent, and the incubation process is kind of trial-and-error. Question Should I leave the lamp on 24 hours a day? Yes, it is important to keep the chicks consistently warm. Question Where should we put the chicks when they hatch? Leave the chicks in the incubator one hour after they hatch or until they're all dry. Then you'll need to move them to a brooder. The brooder is where the chicks will spend the first weeks of their lives. It can be a simple cardboard box but it must contain a heat lamp, bedding, chick food and water. See more answers Ask a Question Advertisement Thanks for reading our article! If you'd like to learn more about incubation and hatching, check out our in-depth interview with Alexandra Doss. Co-authored by: Poultry & Livestock Expert This article was co-authored by Alexandra Doss. Alexandra Doss is a Poultry & Livestock Expert expert based in Ruskin, Florida. She owns and manages Stellar Game Birds, Poultry, Waterfowl LLC, a selective breeding operation with game birds, poultry, and waterfowl. With over 14 years of experience, she produces strong genetics and health in her hatching eggs, eating eggs, and live birds. The farm is FWC game farm licensed, FDAC licensed for quail, chicken, and duck eating eggs and meat, and NPIP certified. She is known as the Quail Lady and has published several books on raising Coturnix. Her work has been featured in Mother Earth News, Backyard Poultry, Grit, The Chicken Whisperer Magazine, and Community Chickens. She also has a career as a Workforce Management Supervisor and has a certificate in project management. She received a BS from Oregon State in Animal Sciences. This article has been viewed 1,155,843 times. Co-authors: 28 Updated: May 26, 2025 Views: 1,155,843 Categories: Chicken Health Print Send fan mail to authors Thanks to all authors for creating a page that has been read 1,155,843 times. "I followed the directions on how to build an egg incubator and I had success. I put seven eggs in, and five eggs hatched. I was very meticulous with my care for the eggs. I turned them every day at the exact same time. The first chick popped on day twenty and hatched on day twenty one. The last one hatched on day twenty three. The hardest thing for me was the temperature change. I felt the temperature was very unstable. Sometimes it would read as cool as 98 degrees or as warm as 103 degrees."..." more Share your story It doesn't matter whether you own a chicken farm or simply want to have a steady income of fresh eggs, having an incubator goes a long way, especially during the colder seasons. More and more people are catching onto the trend of building their own incubators rather than buying consumer-grade models simply because they are quite expensive. In fact, a solid high-quality incubator can cost you over a few hundred dollars while making your own costs next to nothing. Why Should You Consider Making an Egg Incubator? There are people who shy away from the DIY approach simply because they think that you need technical skills, hours of watching YouTube videos, and a well-equipped workshop. Even though you'll need a little know-how, building a chick incubator is pretty easy, especially if you have a step-by-step guide. The best part about making your own incubator is that you will get to decide all of its main components - how big it is, how it will be designed, how many eggs can fit in it, and so on, and so forth. Obviously, you will also save quite a bit of cash during the process, as all of the materials you'll require can be acquired for a pocketful of dollars at nearly any regular convenience store. You might need to take a trip to the hardware shop if you don't have the basic tools, but that's pretty much it. Before You Get Started - Tools and Materials It wouldn't hurt to talk about the materials you'll need so that you get a better perspective of how they work in synergy. Styrofoam The core of your DIY egg incubator should ideally be made of Styrofoam. This particular material has tremendous insulating properties, which is the main reason why we recommend sticking with it. Ideally, you should get a big chunk of Styrofoam; optimally, a Styrofoam box. Gluing and taping smaller Styrofoam pieces is also an option, although this will make the process a bit harder. Cutting Tools You can use a pair of scissors to cut the Styrofoam and to shape the contraption, but we recommend using a scalpel. While scissors are, perhaps, a bit easier to use, a scalpel will benefit you increased cutting accuracy. Styrofoam is pretty squishy, which means that you could easily cut it with a plain kitchen knife too. However, for the sake of precision, use a scalpel. Heating An egg incubator is not simply a 'storage place' for little chicks. You'll need a heating source that will help the eggs hatch in the most natural way possible. Chickens lay atop their eggs to 'warm them up', so you'll need to hit the right spot in terms of temperature. Using a 25-watt light bulb as a heating source is our recommendation. It's neither too strong nor too weak, which means that it's perfect for this particular job. Duct Tape You'll be using duct tape in one or two situations. Firstly, if you haven't been able to find a big piece of Styrofoam, you can duct tape several smaller pieces together; duct tape has great insulation properties, just like Styrofoam, so taping the pieces together seems like a better idea than gluing them together. If on another hand, you've found the perfect Styrofoam box, you'll use duct tape to secure the light bulb. Taping around the heat source ensures that the risk of Styrofoam catching fire is kept to a bare minimum. Note that Styrofoam is incredibly flammable. Humidity Source Since incubators aim to recreate a natural hatching environment for little chicks, you'll also need to introduce a humidity source. Again, just like it's important for Styrofoam to not catch fire, it's equally important for it to not get wet. Water and electricity usually don't go too well hand in hand. We recommend putting some water in a small bowl and inserting a sponge inside. The sponge will soak up the water and substantially reduce the risk of spilling while still providing the atmosphere with the right dose of humidity. Getting Started - Design & Dimensions It's important to note that the materials we've discussed above are needed for 'building an incubator from scratch'. The amount (and quality) of the materials you'll use largely depends on what type of design you want to go for. For example, bigger, more complex incubators usually need several heating and humidity sources. Additionally, low-consumption 25-watt bulbs won't cut it. In that regard, all the materials we've discussed are meant for building an average, simple DIY egg incubator. Step 1 - Building the Core The 'core' of your incubator is basically its 'exterior'. This step requires patience, as you'll be cutting and taping a miniature home for your future chickens. First of all, take out the Styrofoam and decide where you want to go from here. If you think that the box is too small, cut it up in even pieces. Take note that you'll also need a bit of Styrofoam if the box features an open top. In order for the core to be properly insulated, it needs to be sealed. After the 'core' is made, you'll need to cut open a hole in the Styrofoam. Ideally, if the core is rectangular, it should be cut at either end of the longer sides. If it's built like a square, it doesn't really matter. The hole should be just about big enough to fit the smaller end of a 25-w light bulb. You can carve it a bit smaller and then use the bulb's end to gently pierce the remainder of the hole. Step 2 - Connecting the Bulb With an Electricity Source Before you test out the bulb, use duct tape to secure it in place. Even though you've pierced the hole with the screw-in mount (smaller end), duct tape will ensure that it doesn't come loose at any point. It's imperative that the bulb is securely affixed in one position; if its angle drops, it might reach a point of contact with Styrofoam and eventually set it afire. Duct tape provides extra insulation and protection from both electricity and fire. As a measure of precaution, you could also tape the bottom end of the core around the bulb, just to be safe. Alternatively, you can place hard-wire mesh at the bottom. Even though this will cost a couple of extra dollars, it will provide your newly hatched chicks with an additional layer of protection against excess warmth. (Optional) Step 2.5 - Dividing the Core & Inserting the Thermometer The reason why this process is optional is that it involves spending a couple of extra bucks, a bit more cutting, and a bit more taping. Even though chicken eggs will be perfectly safe even under direct exposure from the warmth coming out of the bulb, you can purchase a thermometer to directly monitor everything that's happening inside the core. Budget thermometers usually cost around \$15 to \$20, so there's no need to go with boutique models that come supplied with all the fancy features. Now, if you still want to proceed with this step, you should use hard-wire mesh to split the core in two. The mesh will soak up excess heat, but it will also cut down the core's capacity by half. This will, however, ensure that the hatching process goes as smoothly as it possibly can be. The thermometer should be placed where the chicken eggs are supposed to be (the opposite end of where the bulb is). Step 3 - Adding a Humidity Source Styrofoam has incredible insulation properties, which only means that all of the heat build-ups will remain inside of the core. This can create terribly unpleasant and unnatural conditions for the new hatchlings, so it's important to add a humidity source - water. Since you can't simply pour some water down because electricity's involved, you should put a bowl of clean water on the side where eggs are. A sponge can be placed inside the bowl for easy water quantity adjustment. Humidity is just as important as heating in the egg incubating process; eggshell is porous, which means that water can freely pass through. Regardless of whether eggs are incubated or hatching under normal conditions, they slowly, but steadily dry out. Since eggs gradually lose water, the 'artificial' humidity source will help keep their 'dryness' at a balanced level. Small note - incubators with poor humidity conditions can impact the respiration of new hatchlings. Chicks might not be able to come out of their shell. Step 4 - Make One Side of the Core Viewable It's important to monitor how the eggs are doing, and you can only do so by making one side of the core 'accessible' and viewable. You shouldn't open the top of the core as it will unbalance the atmosphere that has been developing inside (heat from the bulb and humidification from the water with sponge). By observing the incubation process you can counter any potential problems; if you notice that the water has dried up you can replace it in time; if you see that the bulb's angle has been off, you can adjust it, and so on. You can use any type of see-through glass as your viewing portal; if you want to be extra careful, use fireproof glass, but note that this will cost you slightly more. The see-through side should be, obviously, smaller than the core's size, at least an inch from each side. After taking measurements, simply duct tape the glass to the side and you're done. Incubation Temperature & Humidity Parameters Aim to create a controllable atmosphere inside the incubator by following these parameters: The incubation temperature should be maintained at approximately 99.5 F (37.5 degrees Celsius) The incubation humidity level varies; it should be 40% to 50% during the first eighteen days; it should be 65% to 75% during the last couple of days, just before the eggs hatch The margin of error regarding these parameters is equal to statistical error (