

Guidelines for Successfully Incubating Chickens

Remember to wash your hands before handling the eggs. Proper sanitation is very important to prevent bacteria and other contaminants from entering the pores of the shell.

Chicken eggs take 21 days to hatch. Once a fertilized egg is laid, it will remain viable for 6–7 days when kept at room temperature. The date you set the eggs in the incubator will determine when the chicks will hatch. If you would like them to hatch on a certain date, set the eggs 21 days in advance.

Test your incubator in advance to make sure it is running properly and that the temperature is correct. After testing, unplug your incubator. 24-hours prior to setting your eggs, plug it back in and fill half the troughs with warm water to build up temperature and humidity.

Temperature

Incubator temperature should be 100–102°F Fahrenheit. In some incubators, 99°F is acceptable. 103°F and over will kill embryos. When you use a thermometer, place it in the middle of the incubator near the eggs on the screen — not under the screen or at the sides of the incubator. Incubator location is important. Keep it out of drafts and direct sunlight — along an inside wall is best. Ideal room temperature is 70–75°F. If a batch of eggs has trouble hatching, you may need to adjust the temperature the next time you incubate, so keep notes. Often it is the thermometer providing an inaccurate reading. You may want to try a couple of thermometers and take the average. It is very important that incubator temperature remains stable — do not make adjustments during incubation.

IMPORTANT NOTE: In working with local teachers, a temperature of 102°F increased successful hatching rates. This may be because students and teachers open the lids of the incubators to work with the eggs more than in a typical situation. If you are not opening the incubator in a classroom setting, follow the temperature instructions for your incubator model.

Humidity

Humidity should be around 43–44% throughout the 21-day-cycle in the incubator. Keep half the water troughs full at all times. When adding water, warm water is recommended to help keep the temperature steady inside the incubator.



Without humidity, the shell and shell membrane will dry out and become tough for the chicks to break through when it is time to hatch. Too much humidity (over 45%) may cause developmental problems. Do not place anything in the incubator such as sponges to absorb humidity. When adding warm water to the incubator, do not pour any water directly on the eggs. Eggs should not be placed in direct contact with water.

Turning the Eggs

Turning the egg correctly is very important to the development of an embryo. To help you keep track of how to turn the eggs, use a soft lead pencil to mark an X on one side of the egg and leave the other side blank. When the X is up, pick up the egg and place it with the X facing down, and vice versa. Once in the incubator, eggs should be turned three times a day (for example, morning, noon and afternoon/evening). For teachers — on weekends you can turn the eggs once a day. Always turn eggs an odd number of times a day.

Turning provides embryos exercise so they get the proper movement to develop correctly. Some incubators use electronic turners to automatically turn the eggs. In a classroom setting, it is more beneficial for youth to have the hands-on experience of turning the eggs. On the 18th day of incubation, stop turning your eggs. Follow the directions for your incubator — you may need to add warm water. Close the incubator and **DO NOT OPEN** until after the chicks hatch.

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When Chicks Hatch

Chicks will begin pipping (pecking through the shell) around the 21st day of incubation. Pipping will take place for 1–6 hours before the chick emerges from the shell. After emerging from the shell, the chicks begin to dry, move about and become strong. This may take 4–6 hours. It is important to leave the chicks in the incubator until they are completely dry.

Brooder Setup

When you remove the chicks from the incubator, place them in some sort of brooder with supplemental heat. Chicks should be kept at about 95°F for their first week of life. Use a cardboard box, a plastic tote, an aquarium or similar container. Round/oval containers have the benefit of preventing chicks from crowding into corners.

Provide a heat source such as a heat lamp with a heat bulb (recommended) or a desk lamp. You can adjust the temperature by raising and lowering the lamp. Cover the bottom of the container with non-slick bedding such as shredded paper or

wood chips to give traction as the chicks walk. Provide chicken feed and water in shallow containers. Lancaster County teachers, see Lancaster County 4-H video “Brooder Setup for 4-H Embryology.”

Trouble Shooting and Talking to Youth

Fertile eggs may fail to hatch for a variety of reasons. Incubating eggs isn't always easy. Sometimes chicks don't survive because of the poor diet of the mother hen or because of the humidity/temperature in an incubator. Eggs held too long (over 6–7 days) before incubation, or held in too warm and/or too dry an atmosphere also decreases chances of fertility. Sometimes chicks which hatch may be born with deformities and do not survive once they break out of the shell. Some embryos/chicks are just too weak and unable to continue development. Teachers and parents should be prepared to discuss these issues with children. Keep in mind, some children may have never experienced death prior to an egg failing to hatch.