

4-H Embryology Frequently Asked Questions



Remember: your local 4-H agent is your best source of information if you have questions about your eggs or equipment! Reach out to your agent if you have any questions that are not answered on this document. If your agent provides you with guidance that is different from the information listed here, follow your agent's guidance as local conditions may vary.

Q: What temperature should the air be inside the incubator?

A: 99.5°F - 100°F.

Check the temperature BEFORE you open the lid. It's okay if the temperature changes a very little bit for a very brief time; after all, the temperature of a nest changes a little when the mother hen leaves it to get food. However, the temperature should never go below 98°F or above 101°F.

Q: What should the **humidity** (hyoo-mih-dih-tee) be inside the incubator?

A: Days 1-18: 45 to 55%. Days 19-21: increase the humidity to around 65%

A tool called a **hygrometer** (high-gah-mih-tur) measures humidity, or the amount of water in the air. If your incubator does not come with a hygrometer, you can easily find them for sale online at retailers who sell weather-related instruments.

Keep an eye on the water levels in the incubator. If you are in a particularly dry area and are constantly having to refill the water channels, you may want to add a wet sponge to your incubator.

Q: How can I tell my eggs apart?

A: Use a pencil to mark your eggs. Mark an "X" on one side and an "O" on the other for each egg. It is also highly recommended that you number each egg to help youth with record keeping.

Do not use a pen or marker, as these can contain toxic chemicals.

Q: How often do I turn the eggs?

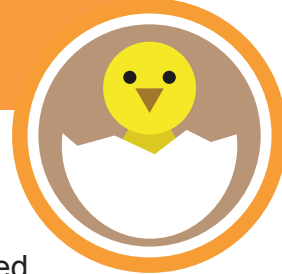
A: Turn the eggs 3-5 times per day each day from Day 1 through Day 17. Then stop turning the eggs on Day 18 so the chicks can prepare to hatch.

Q: What do I do with the chicks once they hatch?

A: Once the chicks have hatched, move them from the incubator into a brooder box. The brooding box will provide them with the appropriate environment to grow and will keep them from accidentally hurting chicks who are still in the hatching process.

Make sure to dip the chicks' beaks into the waterer when you place them in the brooder box so they know where to find water when they are thirsty. It is very important that the chicks have fresh, clean, room temperature water available to them at all times.

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Q: How do I help a chick that gets stuck when it is hatching?

A: If you have a chick that partially hatches, but does not seem to be able to finish hatching on its own after 24 hours have passed, you may be tempted to “help” it along. As difficult as it may be, it is necessary to allow the chick to hatch alone. It is an important conversation to have with youth that not all of the chicks will hatch successfully. They may have not developed appropriately and therefore, will not survive alone if they are assisted in the hatching process. Furthermore, opening the incubator to do so will dramatically lower the temperature and humidity, putting the other chicks at serious risk for injury or death.

Q: What do I do if a chick dies?

A: If a chick does not survive or is seriously injured, immediately contact your 4-H agent or Extension Office so that the chick may be handled properly and humanely. The same is true for any eggs that have not even started to hatch by Day 23.

Q: What kind of box should I use for a brooder box?

A: You can use a plastic storage container (youth love watching chicks in a see-through bin!) or a heavy-duty waxed cardboard box from a grocery store. Do not use regular cardboard as it could be a potential fire hazard. Please see Lesson 6 for detailed instructions on building a brooder box.

Q: What kind of substrate should I use for the brooder box?

A: North Carolina 4-H recommends that you use pine shavings in your brooder box. You could also use another substrate specifically recommended by your 4-H agent. *Note: North Carolina 4-H does **NOT** recommend using kitty litter. However, if you choose to use kitty litter, use only **natural clay, non-clumping, unscented** litter or it could pose a significant health risk to your chicks.*

Q: How do I keep the brooder box warm?

A: A heat lamp is plenty to warm a brooder box for your embryology project. Clip the lamp on one side of the box and place the food and waterer on the other side. Raising or lowering the lamp can help control the temperature inside the brooder box.

If the chicks are happy with the temperature, they will be milling about throughout the box and chirping happily. If it is too cold, they will huddle together near the lamp. If it is too hot, they will be as far from the lamp as possible, quiet, and panting. Raise or lower the lamp as needed until the chicks are happy.

Generally, the brooder box should be around 95°F for the first week, and then cooler by 5 degrees each following week as the chicks’ feathers come in. However, different breeds of chicken have different temperature requirements. Check with your agent for more information.

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Q: How do I keep the brooder box clean?

A: Chicks need a clean, dry space. You will probably need to change the brooder box substrate daily. All of the used substrate must be properly discarded in compliance with your local regulations, as chickens can carry salmonella. Due to the safety issues, youth should not participate in this task.

You will need to move the chicks out of the way in order to remove the substrate. One option is to place the chicks into a second, temporary tote while you clean the first. Another option is to herd the chicks into one side of the brooder box and use a piece of cardboard as a separator to keep them there while you clean the now chick-free side.



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