Hatching chicks from eggs

NZASE resource

Hatching chicken eggs can be an engaging experience for students of any age. Chantal Hillier and NZASE Science Communicator Mike Stone explain what is involved.

Primary

Rachel Shailer hatched eggs with junior students while she was on her final practicum two years ago. At this semi-rural primary school, many students had experience with feeding chickens and collecting eggs but had not seen hatching. Having raised chickens herself, Rachel was confident to do this with students so took her incubator along to school with some fertilised eggs.

The class explored what the egg needed, the different stages of growth in the egg and the chicken's life cycle. There was some new vocabulary, such as humidity and egg-tooth, but students were engaged, picking up the language quickly and using it in conversation.

There were links to English, but mostly it was a science focus, especially Living World and Nature of Science. Rachel found cheap useful resources on Teacher Pay Teachers and Twinkl.

The students loved it and it was memorable for them; one student asked his teacher this year about how the chicks were doing. Both staff and parents also became interested, coming in to have a look at the chicks – they put a flap at the top of a brooder box wall so folk could peek in unobtrusively.

Rachel recommends: "Before you start make sure you know everything that is involved. The chicks are cute but they are smelly too. You also need to organise where the chicks will go to at the end."

From Home Farm Cornwall.

Junior high school

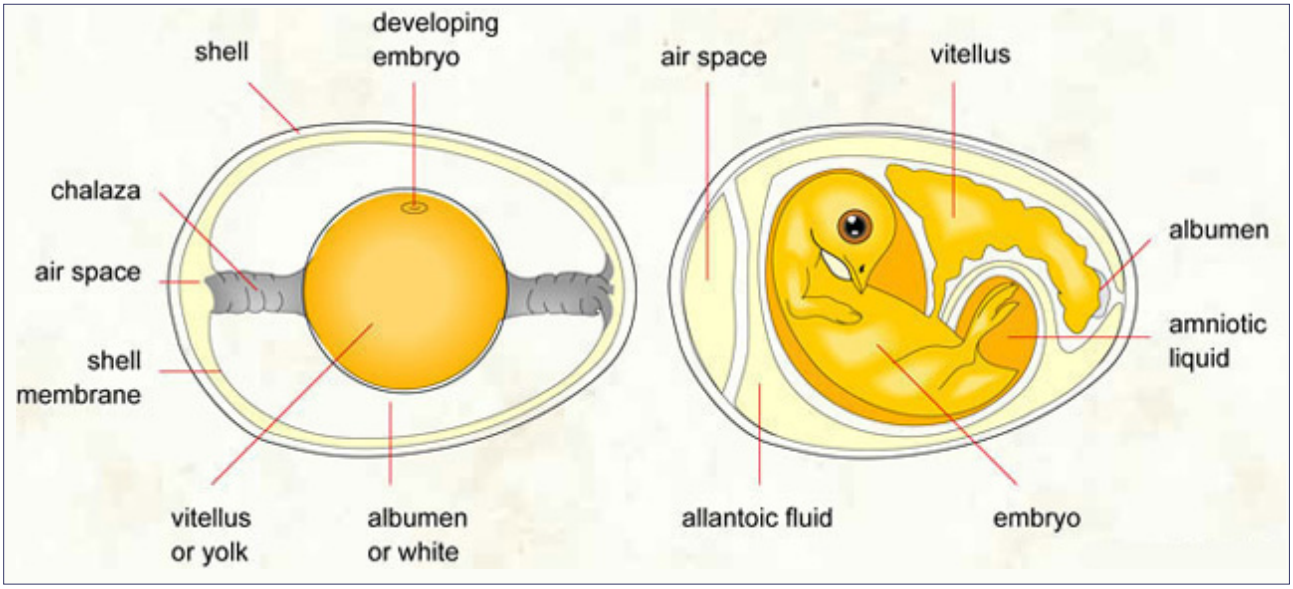
Alice Nash used hatching eggs as a context for her less academic Year 9 class at a south Auckland high school. "Giving them a chance to work with vulnerable animals showed trust, to which the students responded; these rumbunctious kids were very gentle," Alice remembered. "They loved it and one even made it the focus of her speech for English."

Alice did this as part of a unit about life, looking at MRS GREN, hatching chicks and growing sunflowers (adult chickens eat sunflower seeds). She was careful only to do things that did not need ethics approval, so the students did not touch the eggs.

Being in Auckland, they were able to work with an organisation called Living Eggs. The learning support department agreed to fund the cost, which is now $374. Once booked, Jo came in on a Monday with an incubator, brooding box, feed, bedding and 10 19-day-old eggs. She showed Alice and her class what they needed to do and left instructions. Living Eggs also supplies the school with a wealth of password-protected online resources, available before the eggs arrive. They include a risk assessment form and a 24-hour helpline.

A chicken hatching. Photo by Debbie Ardern.

The eggs started to hatch by Wednesday and were transferred to the brooding box where they were kept warm and could be observed. By Monday the chicks were ready to be introduced to students. Each day they weighed the chicks, topped up their food,



Bird embryo development, by www.infovisual.info.

cleaned out the brooder box and observed feeding behaviour. After ten school days, the chicks were picked up the following Friday. At that time (although not since), Living Eggs used the brown shaver breed, whose female chicks are brown and male chicks yellow. This is useful when chicks need to find a home. Families are keen to take egg-layers, but not roosters. The males were given back to Living Eggs who took them to farms.

Jo tells us their eggs come from a government-accredited hatchery with strict bio-security procedures, with all equipment PAT tested.

Alice suggests: "Make sure the brooding box is checked over the weekend – I took it home. And keep the eggs and the chicks in a quiet space."

A senior student project

At Columba College a student came to Chantal Hillier having unsuccessfully tried to hatch eggs at home. Having had experience of hatching eggs, Chanti suggested doing it at school as a project. Together they researched optimal conditions, safety and ethics.

They successfully incubated and hatched several chicks of Orpington and Chinese Silkie breeds. Most of the eggs hatched, and all that hatched survived. The chicks eventually went to student homes.

Chanti advises reading up on animal husbandry, and establishing a clear plan for hatching chicks safely and ethically.

Ethics

Under the Animal Welfare Act 1999, using animals in schools, especially if you are changing some aspect of their normal function, may require ethics approval. The NZASE Schools Animal Ethics Committee helps schools, home schoolers and early childhood centres meet those legal requirements; see the Code of Ethical Conduct.

Caring for chicks and observing them in the classroom **requires ethics approval**. Classrooms are unnatural environments and the presence of students, no matter how quiet, can be a signification stressor for the chicks, which has potential implications for their welfare. Where chickens are kept outside in a fenced coop and observed with the hen, no approval is required. Apply for approval to care for chicks here.

Chicks will imprint on humans and develop problematic behaviour, which will not help their survival once they have left school. So the committee recommends limiting chicks' interactions with humans and quickly finding them a suitable home.

NOTE: This article was amended on November 28, 2022, as the Schools' Animal Ethics Committee updated their advice.

Senior Ag/Hort students

At Bethlehem College, Debbie Ardern teaches poultry husbandry to an alternative, vocational Agriculture and Horticulture class. “For us, it’s less about credits and more about life skills,” Debbie says.

She assesses student skill and knowledge, using US 5151 Monitor health and provide husbandry for caged birds. While hatching eggs is not specifically part of this standard, Debbie chose to add it and the students liked it.

They obtain eggs and incubators and hatch a small batch of chickens, 19 this year. They are raised for eight weeks and sold on, often to farming families.

At the start, students sign a promise to treat animals with care and respect and any untrustworthy behaviours result in removal from the course. “I see these burly 17 year-old boys handling chicks so gently, talking to them in high-pitched voices, getting very protective, annoyed if younger students are noisy and boisterous around them.”

These are visual, hands-on learners, so Debbie goes through the learning together and slowly, using videos. She uses the incubator handbook with students, but as there are few other resources Debbie makes her own. “I divide the class into pairs and each pair researches one stage of egg or chick growth, and makes a digital poster. Then as we get to that stage they present their work, to teach the class about that section. At the end we have a nice synopsis.”

Within the class, each team has a specific weekly task, which may include cleaning the brooder, checking chicks’ food and water, or checking their health.

Debbie recommends finding out the specifics about what is involved first. If things go wrong you can easily end up with dead animals, for example, if the incubator is opened too often. Be aware that once hatched, chicks need a lot of care and they are sometimes hard to sell on.

Equipment

The process can cost up to $600 without receiving donations, borrowing or making what is needed.

A newly hatched chick. Photo by Manuel M. Vicente, Wikimedia.

- **Fertile eggs** can be bought online for $5 an egg, arriving in the post. Buy at least five – these are social animals. Do not wash them, as the shell has a natural protective layer.
- **A digital incubator** with a turning function is best, allowing you to monitor humidity and temperature. (Otherwise, turn manually 3-5 times a day.) Position away from heaters, draughts and sunlight. Prewarm before use, double-checking the temperature.
- **An egg candler** is a torch with a concave end to hold an egg. It shows which eggs are fertile, as the size of the shadow grows as the embryo forms and develops. A beating heart can sometimes be seen.
- **A brooding box** to contain the chicks needs newspaper or untreated wood shavings in the bottom, food and water dishes, and a heat source. A heat pad is safer than a bulb.
- **Chick feed** needs to be fine, like chick starter crumble, and is best if it contains coccidiostat to prevent disease.

Incubation

Incubated eggs will hatch 21 days from laying, so it’s important to time it so chicks will not hatch during the weekend, and to ensure that there are no planned power-cuts. If you number the eggs in pencil you can monitor growth and check that they have been turned.

Candle the eggs only twice during incubation (as lowering the humidity and temperature of incubating eggs too often can result in deformed chicks, or can even kill them), removing non-viable eggs and taking a photo each time. After Day 18, increase humidity and stop turning so the chick can position itself for hatching.

Raising chicks

Once hatched, chicks will feed from the absorbed yolk for the first 24 hours, so do not need food. The next day they need to be transferred to a brooding box and kept warm as they are very vulnerable.

Chicks need constant access to small amounts of starter feed, changed regularly. They will walk through and swim (or drown) in their water, so think about the size of this container. Chicks need to be taught how to drink and feed, e.g., by tapping the container or dipping their beak in. Don't introduce chicks to students before day three, when they are eating and drinking independently.

Ensure chicks have enough space to move towards or away from the heat source so they can regulate their body temperature. Panting or drowsiness indicates overheating, while huddling or loud chirping indicates chilling. Good lighting helps chicks find food and water. Chicks' distress calls can be reduced by providing the clucking sound of a hen.

Chicks produce a lot of ammonia, which is smelly and toxic to chicks, so it is important to clean and sanitise the brooder daily and replace the newspaper, food and water.

Check their health daily and seek help if there is any change in looks or behaviour. Gently clean their bottoms with a warm, wet paper towel if necessary.

These social animals need to live in a flock before they are eight days old, so organise homes for them before they are needed.

Screen shot from a video of a brood box. Photo by Rachel Shailer.

References

J. Jacob, 2022, Normal behaviors of chickens in small and backyard poultry plots, Small and backyard poultry.

Farmlands Co-operative, 2020, A guide to rearing chicks.

Appletons, 2022, Appletons guide to hatching your own chicks.

Resources

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John Dekker, 2010, Blue eggs. [5m video about the life cycle of a song thrush.]

Education Services Australia, 2013, 1-Hatching chickens. [Series of lessons.]

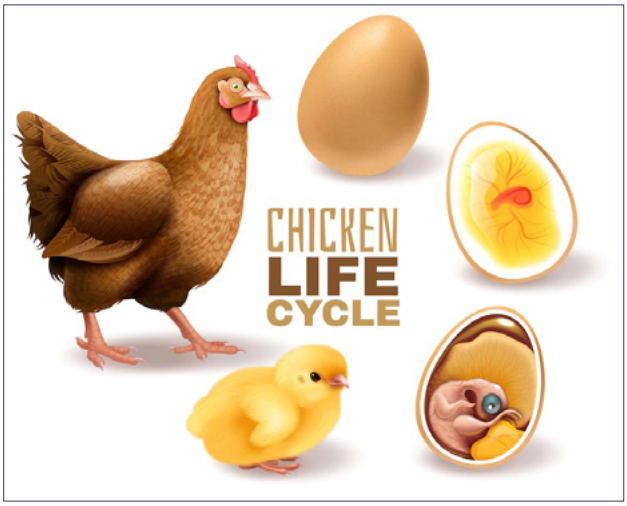

Image: Freepik.com.

Ngā Kupu

Awhi (~hia, ~ nga) – Incubate, incubation; brood, sit on eggs
Heihei – Chicken, hen, fowl
Hua heihei – Chicken egg, hen egg
Haukini – Ammonia
Kahu – Egg white, albumen
Kukune – Embryo, fertilised egg
Matahua – Fertile (of organisms)
Matatika – Ethics, ethical
Pao – To hatch (egg)
Pīpīwai – Humidity.

Te Aka Maori Dictionary and *Paekupu*