

Egg Incubators



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Egg Incubators

The Egg Incubator STEAM Kit offers students a hands-on opportunity to observe and explore the life cycle of birds, specifically focusing on embryonic development and animal care. Equipped with two reliable incubators, students take on the role of scientists and agricultural technicians—monitoring temperature, humidity, and turning schedules as they nurture eggs through to hatching. This immersive experience promotes observation, responsibility, and scientific thinking while integrating biology, data tracking, and environmental science into one egg-citing project.



Grade Level

3rd - 12th

Group Size

10 - 20 students

Time Duration

multi-session

Content of Kits

Components

- 2 Smart Incubator egg incubators



Usage

Getting Started

- 1. Prepare the Incubator in Advance** - Plug in each incubator and allow it to stabilize at the proper temperature (usually around 99.5°F/37.5°C) at least 24 hours before placing eggs inside.
- 2. Discuss the Life Cycle of a Chick** - Introduce the stages of embryonic development with diagrams or videos so students know what to expect throughout the process.
- 3. Assign Observation Roles** - Designate student roles such as “temperature checker,” “humidity monitor,” “turner log keeper,” and “embryo tracker” to build responsibility and teamwork.
- 4. Practice Egg Handling Procedures** - Use sample or model eggs to demonstrate how to safely handle, turn (if not automatic), and candle eggs without damaging them.
- 5. Set Up an Observation Log** - Provide students with a daily log sheet or notebook for recording temperature, humidity, behavior, and embryo development.

Storage

- **Use a Sturdy, Flat Surface** - Place the incubators in a stable, vibration-free area out of direct sunlight and away from heating/cooling vents.
- **Maintain a Clean Environment** - Wipe down the area regularly and keep cords organized with cable ties to prevent tripping hazards or power issues.
- **Post Guidelines Near the Incubator** - Include clear instructions about not opening the incubator unnecessarily to maintain consistent conditions.

Troubleshooting

- **Chicks Not Hatching** - Double-check incubation conditions throughout the cycle. Avoid opening the incubator during the final days unless necessary, as humidity drops can prevent successful hatching.
- **Temperature Fluctuates Frequently** - Check the room environment for drafts or sunlight. Try insulating the incubator’s surroundings or moving it to a more stable space.
- **Humidity Is Too Low or Too High** - Adjust water trays inside the incubator or use a sponge for gradual humidity increases. Monitor with a hygrometer daily.



Activity Guide

Beginner

Meet the Egg

Students examine a raw egg (not for incubation) and label its parts (shell, yolk, albumen, chalaza, etc.). This provides a foundational understanding of what protects and nourishes a growing embryo and introduces vocabulary used throughout the incubation process.

Intermediate

Incubation Monitoring Journal

Students maintain daily logs that include temperature, humidity, and egg-turning records. They also track embryo development milestones using diagrams or by candling, reinforcing the scientific method and patience in long-term experiments.

Advanced

Embryo Growth Timeline Presentation

Students work in small teams to research and visually document the daily or weekly growth stages of a chick embryo. They present their findings as a timeline or slideshow, using data from their own incubation observations.

Extension Activities:

Design the Perfect Brooder

Students design a brooder system for post-hatch care, considering heat sources, space, food/water systems, and chick safety. They can create diagrams, build models, or draft care plans that reflect real-world agricultural planning.



Learning Extensions

STEAM Connections: Science - Math

Learning Objectives:

- Understand the biological processes involved in embryonic development and animal life cycles.
- Monitor and record environmental variables such as temperature and humidity in a controlled system.
- Develop responsibility and attention to detail through daily care and observation routines.
- Analyze and interpret data related to animal growth, development stages, and hatching outcomes.
- Communicate scientific observations through journals, charts, and presentations.

Career Connections:

- **Poultry Scientist** – Studies and improves the health, growth, and production of birds in agriculture.
- **Veterinarian** – Provides medical care and support for animal development and health.
- **Agricultural Technician** – Monitors and manages the conditions needed for animal and crop success.
- **Wildlife Biologist** – Studies reproduction and development in animals in both wild and controlled environments.
- **Science Educator** – Designs and leads inquiry-based lessons related to biology and life sciences.

Essential Employability Skills:

- Responsibility & Dependability
- Observation & Data Tracking
- Problem-Solving
- Communication
- Teamwork





Resources and Accessibility

Safety Guidelines

- **Do Not Open Incubator Unnecessarily** - Keep the incubator closed during incubation and especially in the final days before hatching to maintain temperature and humidity levels.
- **Handle Eggs with Clean, Dry Hands** - Always wash hands before and after touching eggs to prevent contamination and protect developing embryos.
- **Keep Electrical Components Dry** - Ensure incubators and power cords are kept away from water sources, and inspect cords regularly for damage.
- **Supervise Candling Activities** - When using a light to candle eggs, ensure students are supervised and the activity is done in a safe, darkened space.
- **Avoid Overcrowding Around Incubator** - Limit how many students approach the incubator at once to prevent jostling, spills, or accidents.

Accessibility

- **Use Visual Growth Charts** - Provide illustrated development timelines and life cycle diagrams with large text and clear visuals for diverse learners.
- **Assign Flexible Roles** - Allow students to participate as observers, data recorders, presenters, or caretakers depending on their strengths and comfort.
- **Place Incubators at Accessible Heights**

Library Catalog



Library Resources



Feedback

QR to feedback survey

