Incubator Setup Checklist

Note: This is for the Hovabator Model 1588. Your incubator may differ. Check with your local 4-H agent if you have any questions.

At least two days before the eggs arrive:

- ☐ Watch the video, Setting Up the Incubator
- ☐ Unpack the incubator box.
  - If your incubator is missing the manual, let your 4-H agent know.
- ☐ Store the box in a safe place so you can repack everything in it once the project is complete.
- ☐ Select a flat, stable surface for your incubator that:
  - is out of reach for pets, children, or other hazards,
  - has access to a dedicated electrical outlet that no one else will use during the project, and
  - is in a temperature-controlled environment.
- ☐ Place the plastic water insert inside the bottom of the incubator.
- ☐ Completely fill troughs 1 and 4 with lukewarm water.
- ☐ Add the plastic grid on top of the water trough and close the incubator.
- ☐ Make sure the little red plug is plugged in the top of the incubator.
  - If your incubator is missing the red plug, you can tape over the hole as a temporary solution. Let your 4-H agent know that the plug is missing.
- ☐ Plug the charger into the top of the incubator and into the wall.
  - If the incubator does not turn on, make sure the charger is plugged all the way in and the outlet is working properly.
  - Check with your 4-H agent if it still does not turn on after troubleshooting.
- ☐ Check the humidity and temperature readings frequently.
  - Humidity should stabilize around 50-60%.
    - ☐ If your humidity is too low, add more water to the troughs. You may need to use troughs 2 and/or 3 as well as 1 and 4. You can pour the water through the plastic grid into the troughs.
    - ☐ If your humidity is too high, remove the plastic grid. Add a sheet of aluminum foil over half of the water insert to slow the rate of evaporation. Then replace the grid.
  - Temperature should automatically be set to 100°F.
    - ☐ Temperature should stay between 99°F and 101°F. If you are concerned, you can place a sterilized thermometer inside the empty incubator to check.
- ☐ Use the manual to help you troubleshoot issues that arise during the setup.
  - Contact your 4-H agent if troubleshooting does not help resolve the problem.

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Note: Eggs can be stored before incubation between 50°F and 70°F, but fertility dramatically decreases after 7-10 days. Make sure to set the eggs when you receive them from your 4-H agent.

- ☐ Make sure that your incubator is working properly
  - Temperature should be between 99°F and 101°F.
  - Humidity should be between 50% and 60%.
- ☐ Watch the video, Setting the Eggs.
- ☐ Wash your hands thoroughly with soap and water.
- ☐ Visually inspect the eggs. Reject any eggs that are
  - Dirty
  - Cracked
  - Misshapen

  These eggs will have a lower hatch rate and are likely to pose a risk to your other embryos. Eggs that are dirty or cracked could introduce bacteria that could also contaminate the rest of the eggs in the incubator.
- ☐ Optional: You may want to candle your eggs prior to setting them to make sure that there are no tiny cracks you would otherwise overlook.
- ☐ Use a pencil to mark acceptable eggs with an X on one side and an O on the other.
  - When working with youth, it is helpful to number the eggs in pencil as well so that each egg can be individually identified during the record-keeping process.
- ☐ Carefully place the eggs in the incubator so that the X side is facing up on each egg.
  - Make sure to leave space between each egg so that they are evenly distributed throughout the incubator.
- ☐ Close the incubator. Make sure that the temperature and humidity levels return to the proper settings.
- ☐ Wash hands thoroughly with soap and water.
- ☐ Complete record keeping duties.

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All days:

- ☐ Watch the video, Incubation Tips
- ☐ Always wash your hands thoroughly with soap and water before and after handling eggs!
- ☐ Keep careful records of everything you do.

Incubation days 1-17:

- ☐ Make sure the temperature stays between 99°F and 101°F .
  - It may fall slightly when you open the incubator to turn the eggs, but should return to normal very quickly once the incubator is closed.
- ☐ Make sure the humidity is between 50% and 60%.
  - To increase humidity, you can pour water into the troughs through the spaces in the plastic grid. Having a light over your brooder makes this easier to see.
  - To decrease humidity, remove the eggs and the plastic grid. Lay a piece of aluminium foil over part of the water insert to reduce the evaporation rate. Carefully put the grid and eggs back and close the incubator.
- ☐ Make sure the eggs have enough oxygen.
  - If you are using an automatic egg turner, remove the red plug on the top of the incubator around Day 6 or 7. Tape it to the window on top of the incubator so it does not get lost.
  - If you are turning the eggs by hand, leave the red plug plugged in. The eggs will get enough oxygen from the number of times you open the incubator each day.
- ☐ Turn the eggs at least three times each day.
  - Roll the eggs 180° each time so that the embryo's vascular growth happens optimally.
  - Use the X and O marks to keep track of which eggs have been turned 180°. You will know that you have turned all of the eggs when they all have the same letter facing up. The letters will alternate (e.g., all X to all O or all O to all X) each time.

Incubation days 18-21:

- ☐ Stop turning the eggs.
- ☐ Increase the humidity by 5%.
  - This will help the embryo to pip (hatch) by making the shell more pliable and keeping the embryo from drying out.
- ☐ Prepare a brooder box.
- ☐ Leave the incubator closed until all chicks have finished hatching.

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Note: Set the bedding and heat source up on Day 18. This will give you enough time to make sure the lamp is working properly and the temperature is controlled before the eggs begin to hatch on Day 21. Check with your 4-H agent if you have any questions.

Materials:

- ☐ A heat lamp or radiant heat source
  - If you are using a heat lamp, consider using one with a cage or other protective covering over the bulb.
- ☐ A large clear plastic storage bin
- ☐ A chick feeder
- ☐ A chick waterer
- ☐ 2 mayonnaise jars or canning jars (if your feeder/waterer does not have an attached storage container)
- ☐ Optional: marbles or glass beads to place inside the waterer
- ☐ A paper plate
- ☐ Chick starter feed
- ☐ Pine shavings or straw
- ☐ Thermometer
- ☐ Optional: a board
- ☐ Optional: a window screen

To do:

- ☐ Watch the video, Setting Up a Brooder Box
- ☐ Select a stable location that is out of the reach of children, pets, or other potential hazards and that has a dedicated electrical outlet available.
- ☐ Check the heat lamp carefully to make sure that the wiring is intact and in good shape.
- ☐ Add untreated pine (not cedar) shavings to the bottom of the storage bin
  - If you don't have pine shavings, you could use straw. Be aware that straw will be less absorbent. Check with your 4-H agent for more information about bedding options.
- ☐ Add a 75 watt incandescent light bulb to the heat lamp.
- ☐ Attach the heat lamp to the storage bin so that it is facing down near the center of the bin.
  - You may need to use a board or small piece of wood across the top of the bin to help position the heat lamp correctly.
- ☐ Hang the thermometer inside the brooder box so that it is measuring the air temperature at chick level.
  - Adjust the temperature by moving the heat source up or down.

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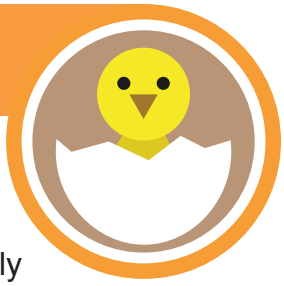

- ☐ The ideal temperature is 90°F to start.
- ☐ You will reduce the temperature by 5°F each week after you add the chicks until the temperature either reaches 70°F or the chicks are fully feathered.

☐ Attach the jars to the feeder and waterer.

- For the first day or so, use a small paper plate with chick starter feed instead of a feeder. The plate will be easier for chicks to reach. It will also be easier for them to use because they will instinctively scratch for food at first. Put a tile or small board underneath the plate to keep it out of the bedding.
- You may want to place marbles or glass beads in the waterer to keep your chicks out of it.
- Use lukewarm water for the waterer.

☐ Place the feeder and waterer in the storage bin so that chicks have continuous access to food, water, and warmth.

☐ If you need a lid to keep pets or people out of the brooder box, make sure to provide adequate ventilation.

- One option is to use an expanding window screen as a lid.

☐ Add birds from the incubator when they have fully dried. Avoid opening the incubator unless all birds are fully hatched or hatched chicks pose a significant hazard to others. Talk with your 4-H agent about ways to safely remove chicks from the incubator.

☐ Dip each chick's beak in the water when you place them in the brooder box so they know where to find a drink.

☐ Use the chicks as a temperature gauge:

- If they are huddled together underneath the heat source, the temperature is too low.
- If they are spread out around the edges of the brooder box and/or panting, the temperature is too high.
- If they are evenly distributed throughout the brooder box, chirping happily, and moving about, the temperature is just right.

Most 4-H Embryology programs leave the chicks in classrooms no longer than 3 days. If your chicks will be staying longer, they will quickly outgrow a plastic bin. Check with your 4-H agent about how to properly care for your growing chicks.

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