Name:

# Incubating Interns Project Booklet

# Pre- Incubating Questionnaire:

What breed(s) of chicken are you hatching?

How many eggs are you incubating?

How long will the incubating process take?

## Key Terms:

Rooster:

Hen:

Chick:

Yolk:

Embryo:

Fetus:

Humidity:

Incubator/Incubating:

Setting Eggs: _____

_____

Candling:_____

_____

Pipping:_____

_____

Brooder:_____

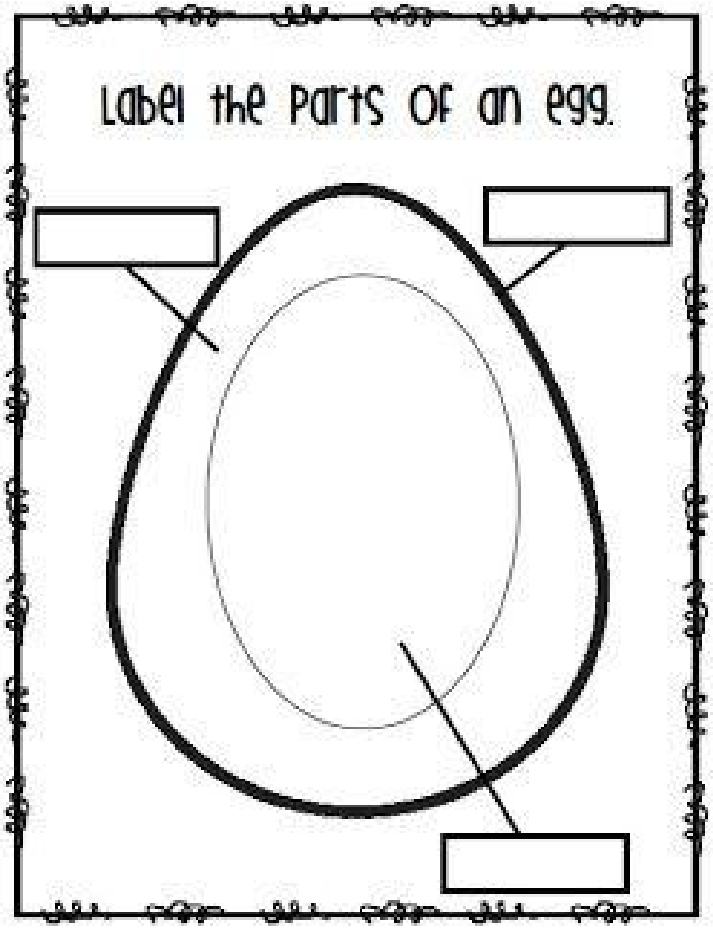
_____

## Egg & Egg-anatomy:

Describing the eggs: (Pick 2-3 eggs to compare

Colors:_____ Sizes:_____ Weights: _____

Label the Egg Diagram:



## Journal Entries:

Use the journal entries below to record temperature, humidity, fetus development and predict what the chick will look like!

## With every experiment comes a hypothesis! So, answer the prediction prompts:

How many eggs do you think will hatch?

_____

_____

_____

What colors do you think the chicks will be?

_____

_____

_____

How long do you think it will take to hatch after pipping?

_____

_____

_____

Finally, do you think there will be any chicks hatching before day 21?

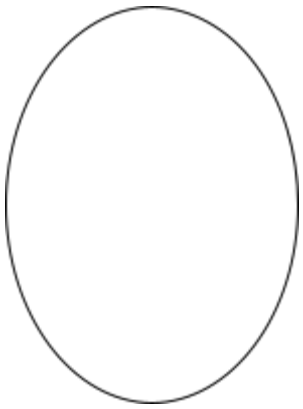
_____

_____

## Day 1-7:

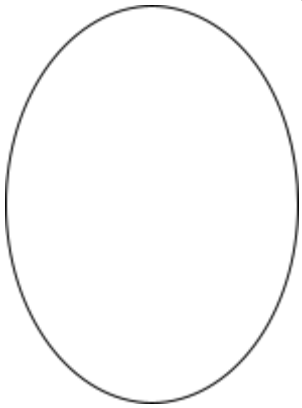
At this point, there will be very little developmental changes, but still an important part in the process! Day 7 may give you an idea of how many eggs were fertilized!

| | |
|---|---|
| Current Temp:_____<br>Current Humidity:_____<br>How many eggs? _____ | Was there any development with the embryo? If so, draw what you saw in the egg below: |

| | |
|---|---|
| Notes: |  |

## Day 10:

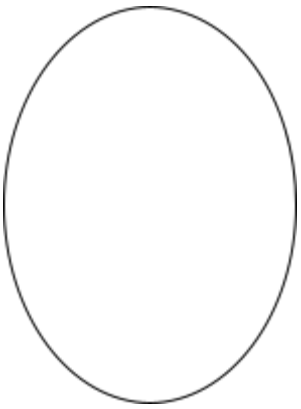
Today is a crucial part of the incubating process because it will determine the amount of eggs that will remain in the incubator to continue incubating!

| | |
|---|---|
| Current Temp:_____<br>Current Humidity:_____<br>How many eggs? _____<br><br>Notes: | Was there any development with the embryo? If so, draw what you saw in the egg below:<br>  |

## Day 14:

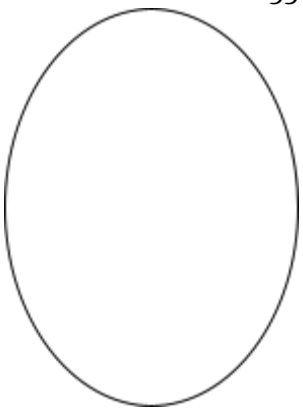
When candling you should see a significant difference between what the embryo looks like compared to day 10!

| | |
|---|---|
| Current Temp:_____<br>Current Humidity:_____ | Was there any development with the embryo? If so, draw what you saw in the egg below: |

| Notes: |  |
|---|---|

## Day 16:

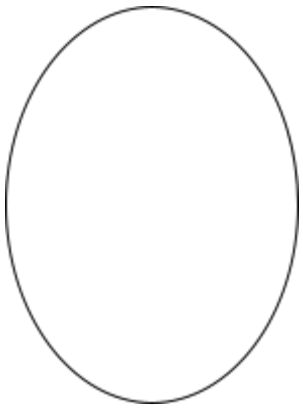
Today you will see a significant change inside the egg and it will show you that a chick is really forming in there!

| Current Temp:_____<br>Current Humidity:_____<br><br>Notes: | Was there any development with the embryo? If so, draw what you saw in the egg below:<br>  |
|---|---|

## Day 18:

Today is the last day you will be candling the eggs! The embryo is nearly a formed chick!!

| Current Temp:_____<br>Current Humidity:_____<br><br>Notes: | Was there any development with the embryo? If so, draw what you saw in the egg below: |
|---|---|

| | |
|---|---|
| |  |

## Day 20:

Today is an exciting day, because tomorrow is hatch day! (During this point in the incubating process it is not safe to candle the eggs because they are nearing hatch day!)

| | |
|---|---|
| Current Temp:_____<br>Current Humidity:_____<br><br>Notes: | You may find that today will bring the surprise of an eager chick, and that is totally normal! If there is an eager chick beginning to peep/hatch, predict below what you think the chick will look like!<br>  |

Tomorrow is hatch day! But, we have a few questions to answer before then!

How are you feeling about hatch day? Excited? Nervous? Why?

_____

_____

_____

____

What has been the coolest part so far?

_____

_____

_____

Did any chicks hatch before day 21?

| | | | |
|---|---|---|---|
| Yes | | No | |

## Day 21:

Today is a BIG day! Remember to be patient and appreciate how amazing this experience is!

| | |
|---|---|
| Current Temp:_____<br>Current Humidity:_____<br><br>Notes: | Color the chick below to match one of the chicks in the incubator!<br>  |

## Day 22:

Today is the day after what is known as "hatch day." Some eggs may not have hatched yet, and that is okay! Typically there is at least one slow poke in the bunch! The other chicks are fine in the incubator and will appreciate the warmth to dry off in!

| | |
|---|---|
| Today you may move the chicks to the brooder if all of the eggs have hatched!<br>What is a brooder, and why is it called that?<br>_____<br>_____<br>_____<br>_____<br>_____<br>_____<br>_____<br>_____ | If there is a new chick hatching today, color it below to predict what color it may be!<br>  |

## Day 23:

| | |
|---|---|
| Use the space below to draw a diagram of the brooder (from above) and color it! | Today is the last day of the Incubating process! Use the chick diagram below to color your favorite one!<br>Name of the chick:_____<br>Color: _____<br>Size:_____<br>Weight: _____ |

| | |
|---|---|
| |  |

## Final Journal Entry:

What did you think of this experience?

_____
_____
_____
_____
_____

What was your favorite part of the incubation process?

_____
_____
_____
_____
_____

What day of candling did you find the most interesting? And why?

_____
_____
_____
_____
_____

Would you want to do this process again?

How has this process changed how you have seen animals?

Were there any issues in the incubating proces? If so, explain below:

Is there anything you would like to change about this experience?

# Chick Hatching Program Guide

This guide is based on our first-hand experience with the incubator using a half a dozen Silkie chickens and half a dozen BYM (Salmon Faverolle, Black Copper Maran, Cochin & Ameraucana).

## Hatching Egg Selection:

We bought a dozen silkie hatching eggs and Barnyard Mix (Salmon Faverolle, Black Copper Maran, Cochin & Ameraucana) hatching eggs from two local breeders. We chose the silkie breed because it was a unique breed that our students did not know existed! These chickens are a bantam breed, so the eggs were roughly half the size of regular eggs. The Barnyard Mix eggs (Salmon Faverolle, Black Copper Maran, Cochin & Ameraucana) were primarily used to show the students the varying sizes and colors (blue, pink & dark brown) between chickens! **These are regular-large sized chickens!**

When considering eggs it's necessary to not only look at the breed, but the fertility and hatch rate that the breeder states. With this experiment it is likely that not all eggs will hatch, however, the fertility rate of the hatching eggs will determine the amount of eggs that will potentially yield chicks. Hatching rate determines whether or not the chicks will make it to hatch date. In a gist, a good fertility rate will give you a great start, but a great hatching rate will ensure that you will yield many chicks at the end

of the incubation period. We recommend finding eggs with a 70% or higher fertility rate with a 95-100% hatching rate.

The breeds of chickens will vary when they hatch, but only slightly! Bantam breeds (such as the silkie) tend to hatch earlier than regular chicken breeds. Ducks/Geese eggs will take the longest to hatch at around 28 days but fertility and hatch rate are important with these hatching eggs as well!

## From farm to Classroom:

The transportation and storage of the hatching eggs plays a key part to the success of the hatching experiment! The eggs will need to be stored at room temperature, and turned occasionally before pick up (the breeder will practice these measures for you). If you choose to have the eggs at the school for a few days, you can, but hatching eggs can only sit for a period of 7 days before the hatching/fertility rate dramatically drops. For pickup, it's important to make sure the eggs are given a cushioned ride and a warm but not HOT vehicle! It is best to limit the eggs travel to just one trip to ensure that the air pockets in the eggs aren't disturbed.

When the eggs make it to the classroom, it's essential that they sit in the proper temperature conditions for a minimum of 24 hours. This allows the eggs to settle which will give them an opportunity to successfully start incubating!

## Humidity & Temperature:

Throughout it all and after all the precautionary measures you have taken, the success of your hatching experience lies on the proper temperature and humidity.

Humidity levels for hatching are the following:

- Day 1-18 45-55%
- Day 18-23 55-65% ( the 60-65% is the sweet spot!)

Temperature levels for hatching are the following:

- Day 1-21/23 temp needs to be maintained around the 37 - 37.5 degrees celsius

If there happens to be a power outage or temperature loss immediately wrap a towel or blanket to insulate the incubator! If the humidity spikes above the recommended amount, slightly move the lid off for around 20 seconds, place the lid back on and see what your readings are (repeat if necessary - if you drop it below, just add a small amount of water)!

## Candling:

Candling is one of the most interesting parts of the incubating process, but there are a few things to note when doing it. The incubator may come with a built-in candling system, but a well lit flashlight will do the trick also! Between day 1-7 there will be little development so candling during these days will not provide any indication on which eggs will have taken to the

incubation. Days 7-10 is when the embryo starts to form and will determine which eggs will continue incubating and which ones won't. From days 7-18 you can candle whenever you choose, but it's best to limit it to every other day to not disturb the hatching process! (Make sure the incubator lid is immediately put back on to ensure the temperature and humidity doesn't drop dramatically. Day 18 is about the latest you should candle because at this point there won't be much room left in the egg so you may find it hard to see anything. Day 19-21 is referred to as Lockdown and there cannot be any candling to ensure the temperature and humidity levels meet the recommended numbers for this stage!

## Incubating Development Breakdown:

Day 1-6/7: unfortunately these days don't meet the measure of excitement. During this stage the embryo either takes or does not take to the incubation.

Day 7-10: these days will be the period of development that will determine which eggs are fertile and which ones aren't. At this stage you should see the veins and the small dot indicate a great start to incubating for that chick!

Day 11-14: these days are a slow development period but will still have slight changes. But a clear embryo should be seen. If it looks dark red/black,

it could indicate that the chick didn't make it. But, you can allow for hope till day 18.

Day 16: this day will be a really huge development day and as you can tell the embryo/fetus is really growing! You should see movement with the embryo if there isn't any, mark the egg with a pencil (not pen) to check again on day 18 (we do this to see if any chicks failed to make it to day 21 which is a possibility and most likely nothing to do with the incubating, and more so just on the chicks failure to thrive.) .

Day 18: this will be the last day of candling and depending on the chicks development it may be hard to see anything! But, like above, you should still see movement! **you could see a heart beating**

Day 19-21: these are the most crucial days in the incubating process because a humidity or temperature drop could cause your incubation to turn unsuccessful. There may be an eager chick or two that may start to peep (chirping and poking a hole through the shell) . It's important that you do not remove the incubator lid (only should be done if the humidity needs to be increased). If there is a removal of the lid for a long period of time it can cause the eggs to sort of "shrink wrap" making it hard for the chick to break through the membrane on its own. The chicks will hatch on their own (do not assist chicks until they are reaching 30-32 hours of hatching).

Intervening too early can cause the chick to be prematurely detached from the blood system in the egg and can cause the chick to bleed out), and will need at least 24 hours to dry in the incubator. The chick will have more than enough nutrients from the yolk to stay in the incubator till all, or most, of the eggs hatch by day 22.

When all chicks are dry around day 22 you may transfer them to the brooder. Make sure the brooder is already set up with room temperature water (if it's cold it may cause the chicks temperature to drop which can fatal), food and the heat lamp (have the heat lamp turned on 20-30 minutes before transferring the chick to make sure the bedding is already warmed for them).

## Hatching Day:

The big day is so exciting and nerve wracking all-in-one! However, it is also a very important day that requires a few things from you:

- Make sure the temp and humidity meets the requirements for this incubation stage
- A chick can take up to 36-48 hours to hatch, and it's essential you give them that time to make sure they successfully detach to avoid any health issues
- During this stage, it's called Lockdown simply because you are not to open the incubator so that the humidity and temperature remain and give the chick an easy entrance into this world!

- As soon as the chick is out of the egg and chirping away it may be tempting to move it into the brooder. However, it can stay in the incubator for up to 72 hours. Usually, the eggs hatch within 48 hours of each other so it shouldn't need to be in there that long. In order for the chick to thrive in the brooder, it's essential that it is dry and full of energy before it is moved into the brooder. The chicks will find the water and food on their own, but on a rare occasion a chick may need assistance on finding the food/water supply!

## Brooder Set up & Chick Care:

In order for your chicks to successfully thrive it's crucial that they remain warm at all times, have access to fresh food (Medicated Chick Starter) and fresh/clean water. A heat lamp or brooder plate is recommended (we went with a heat lamp). For feed, we recommend medicated chick feed because it will give the chicks an advantage against any potential health issues/diseases. Clean/fresh water is essential, and you can add a small amount of livestock electrolytes to ensure the chicks have a steady supply of energy to thrive (but it's not necessary).

Our brooder set up was a used rabbit cage, pine shavings (can use: puppy pads or newspaper too), chick-raising specific watering and feed containers, and their heat lamp. Depending on the length of stay and the amount of chicks you hatched, the brooder may need to be cleaned, but not daily. The heat lamp should be about a foot and a half away from the chicks to ensure

they don't overheat. If the heat source is too far above, it could allow for the chicks to grow vulnerable to cold breezes.

## Chick Handling & Care:

Chicks can be handled at any time after being moved to the brooder, but it's important that they either remain in your hands (to stay warm) or placed back in the brooder after a minute or two so it doesn't get cold. Although it is tempting to watch them explore the classroom, the temperature insecurity can be quite dangerous! Overall, enjoy the little ones and how amazing their journey into this world was!

## What to do with the chicks post-incubating:

Depending on the breeder, they may be open to having the chicks back, or help you find a home for them. They can be rehomed anytime after a day old, so it all depends on the preference for the chick's stay! There are two different options to advertise the chicks if you need to find them a home. You can join and post in the "Alberta Chickens and Chicks" or Kijiji!

HAPPY HATCHING!!