

ADAPTATION

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Chicken and Duck Embryology

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The Louis Armstrong Middle School

page 6

chicken *ma* duck

By Gregory Grambo, Marie Gray, Tony Yaskulski
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ABOVE- Chromosome structure of a chicken
BELOW- Nine day old chick fetus



ABOVE- Students participating in a discussion
BELOW- Chart from the student's log book

fill in this chart ↓

chick development chart

day	date	day of week	Temp (Room)	Incubator Temp	humidity	Wt. of egg	Comments
1	5/6/93	W	79°F	99°F	44%	0.00g	
2	5/7/93	Tu	76°F	100°F	53%	0.00g	
3	5/8/93	F	76°F	100°F	53%	0.00g	
4	5/9/93	S	77°F	100°F	53%	0.00g	
5	5/10/93	S	78°F	100°F	53%	0.00g	Duck remains the chicken day 1
6	5/11/93	M	78°F	100°F	53%	0.00g	
7	5/12/93	T	78°F	100°F	53%	0.00g	
8	5/13/93	W	78°F	100°F	53%	0.00g	

In many schools, teachers are mandated to teach sexual reproduction, and the process of embryonic growth and development. During the past two years, we have researched and developed a project for students utilizing chicken and duck embryology studies. These studies allow for comparison and insights into human fetal development and growth prior to birth.

First we designed a log book so the children could keep a daily record of the changes in growth that occurs from day to day inside the egg. This log had ample space for the students to record drawings of the changes taking place, along with written data concerning daily temperatures and humidity readings. We also provided a section in the log book for students comments, questions and insights. In designing the log book with this format we encouraged the children to keep track of daily recordings for the entire 21 (for chicken) to 28 (for duck) days. This format also allowed for students experiential writing experiences and enhanced their drawing skills in a manner that aided in their understanding of the experiment.

When the children came into the classroom they discovered that their desks had been removed. Their learning environment had been altered to make room for children from other science classes that met during that same period. So that now the teacher was not working with one class, but with two or three classes instead. However, two or three other teachers were also in the classroom which allowed for team teaching. In working with such a large group, new guidelines had to be set up and adhered to in order for learning to take place. Uncooperative behavior on the part of the children would have had a disastrous effect on the project. The children were asked to sit on the recently polished floor in such a manner, and in such a position so that they could observe what was going on, and thus be able to participate fully in the activities.

Through group discussions, slide presentations, overhead projections, and video tapes, the children were introduced to the world of a growing embryo. It's daily growth was recorded from early cell division through the embryonic and fetal stages and onto birth. Documenting statistical readings into a log book is an important task. But the children should understand what they are taking a reading of, and why it is important to the incubation project, therefore, each day we introduced new concepts, such as humidity, thermostat readings, and convection flow, through hands-on experimentation.

To introduce literature we acted out children's stories such as, Horton Hatches The Egg by Dr. Seuss. On other occasions we told chicken and egg jokes to inject humor into the project. There was even a day when we cooked some eggs, and created original egg recipes. As teachers we tried to incorporate as many different types of experiences surrounding eggs, and chickens as we could into this project.

After going over the hatching process, the children were ready for the big day. However, we had problems to contend with, which are part of any scientific process. Only three out of our twelve eggs hatched, and this raised a series of questions. Was it a humidity problem? Was it an incubator problem? All experiments have variables, and this is something children should learn from and come to terms with.

As the project came to a close, the students had to come up with something that told of their experiences during the project. Some children wrote compositions, while others wrote original stories. A few students wrote poetry and some made illustrations to enhance written work. One student even told his own story through an original comic strip. These writings and drawings were bound into a book and placed in the school library for viewing by the student body.

embryology



ABOVE- Chick embryo on day three

RIGHT- Bulletin board set up in the hall so all students could see the progress of our eggs

BELOW- A hatched chick on day twenty one



A special thanks to Robert Drevenak for his help with the photographs in this article.

The hardest part of our project was not squeezing 60-100 children in one classroom during mid 80 F temperatures, but instead making sure our eggs were turned and temperature readings were taken over the weekends. Our great custodial staff came in and made sure our experiment went off without a hitch. That's 'hitch' not 'hatch'!!!



Using the egg tooth, the chick punches a hole in the egg.



Videos such as "Windows into An Egg" brought us closer to seeing what is actually going on, day by day, inside the eggs. The three science teachers involved in this project, helped the students candle the eggs. This involves holding the egg up to a light, trying to catch a glimpse of the life inside. This is sort of like a primordial sonogram.



Egg number eight hatches

This chart is reprinted from the manual "From Egg To Chick" by Cornell Cooperative Extension. Compliments of Cornell University.



DAILY CHANGES IN THE WEIGHT AND FORM OF THE DEVELOPING CHICK EMBRYO

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Chicken or Duck Embryology

By Gregory Grambo, Marie Gray, Tony Yaskulski
The Louis Armstrong Middle School



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The hardest part of our project was not sourcing 60-100 children in one classroom during mild 80 F temperatures, but instead making sure our eggs were turned and temperature readings were taken over the weekends. Our great custodial staff came in and made sure our experiment went off without a hitch that 9 chicks not hatch!!!

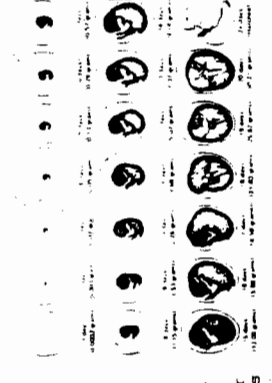


Using the egg tooth, the chick punches a hole in the egg.



Viewing such as "Windows into an Egg" brought us closer to seeing what is actually going on, day by day. The instructor, teachers, and students involved in this project, handled the students' inquiries. This involves not only the egg but also the chick. A little help from the staff of the school was also needed.

This unit is featured from the manual "From Egg to Chick" by the Cornell Cooperative Extension, Comptroller, Cornell University.



ABOVE - Chick embryo on day three
RIGHT - Butler in board set up in the hall so all students could see the progress of our eggs
BELOW - A hatched chick on day twenty-one



A special thanks to Robert Drevenak for his help with the photographs in this article.



ABOVE - Students participating in a discussion
BELOW - Chart from the student's log book

Chick development chart

Day	Temp	Humidity	Turns	Notes
1	80	50	10	
2	80	50	10	
3	80	50	10	
4	80	50	10	
5	80	50	10	
6	80	50	10	
7	80	50	10	
8	80	50	10	
9	80	50	10	
10	80	50	10	
11	80	50	10	
12	80	50	10	
13	80	50	10	
14	80	50	10	
15	80	50	10	
16	80	50	10	
17	80	50	10	
18	80	50	10	
19	80	50	10	
20	80	50	10	
21	80	50	10	
22	80	50	10	
23	80	50	10	
24	80	50	10	
25	80	50	10	
26	80	50	10	
27	80	50	10	
28	80	50	10	
29	80	50	10	
30	80	50	10	

BULLETIN

St. Louis Archdiocese, Valley View School

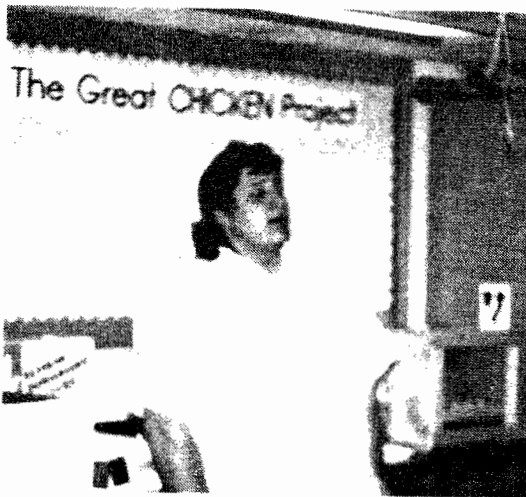
PARENT - TEACHER ASSOCIATION

THE GREAT CHICKEN
AND DUCK PROJECT

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The Great CHICKEN

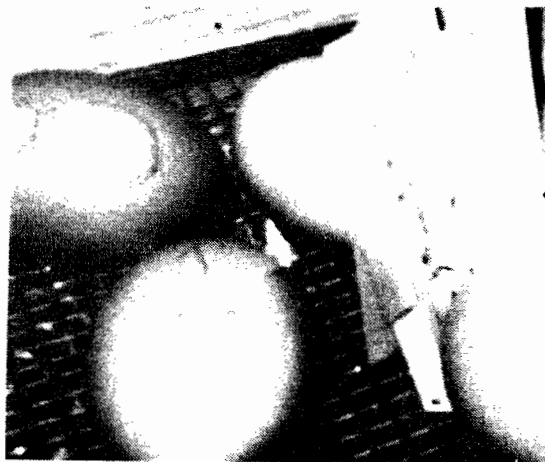
By Gregory Grambo
Marie Gray
Tony Yaskulski



During the month of May, all of our sixth graders participated in a science project on chicken and duck embryology. The classes gathered each period in room 246 to collect various data including temperatures which they recorded in their embryology log books. Through slides and demonstrations, the children learned about the different stages chicken and duck embryos and fetuses go through. A single cell splitting and dividing to become blood, skin, bone, and internal organs is an exciting concept. "The head grows fastest at first", says Gregory Harris of 6-520, "But the body catches up after a while."

ABOVE-Mr. Y. speaking to the classes.

RIGHT-The numbered eggs inside the incubator.



Videos, such as "Windows Into An Egg" brought us closer to seeing what is actually going on, day by day, in the eggs. The three sixth grade science teachers who initiated this experiment, Gregory Grambo, Marie Gray, and Tony Yaskulski, candled the eggs. This involves holding an egg up to a light and trying to catch a glimpse of the life inside. This is sort of like a primordial sonogram. Our chicks are scheduled to hatch after being incubated for 21 days on May 27 while the ducks should hatch one week later.

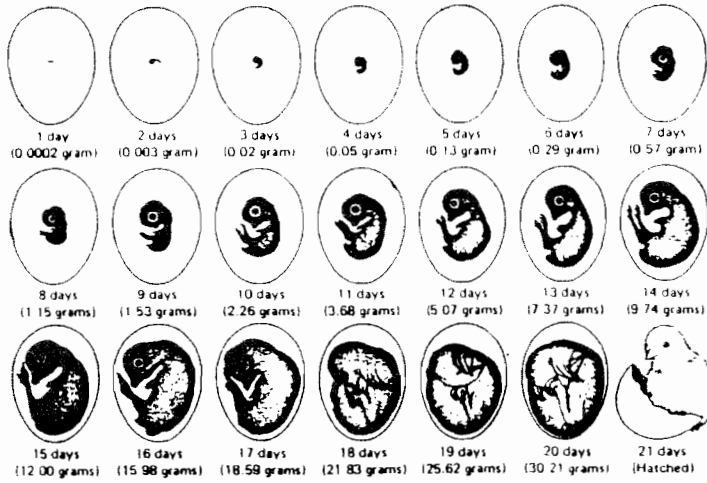


LEFT- Four day old chick embryo.

and DUCK Project

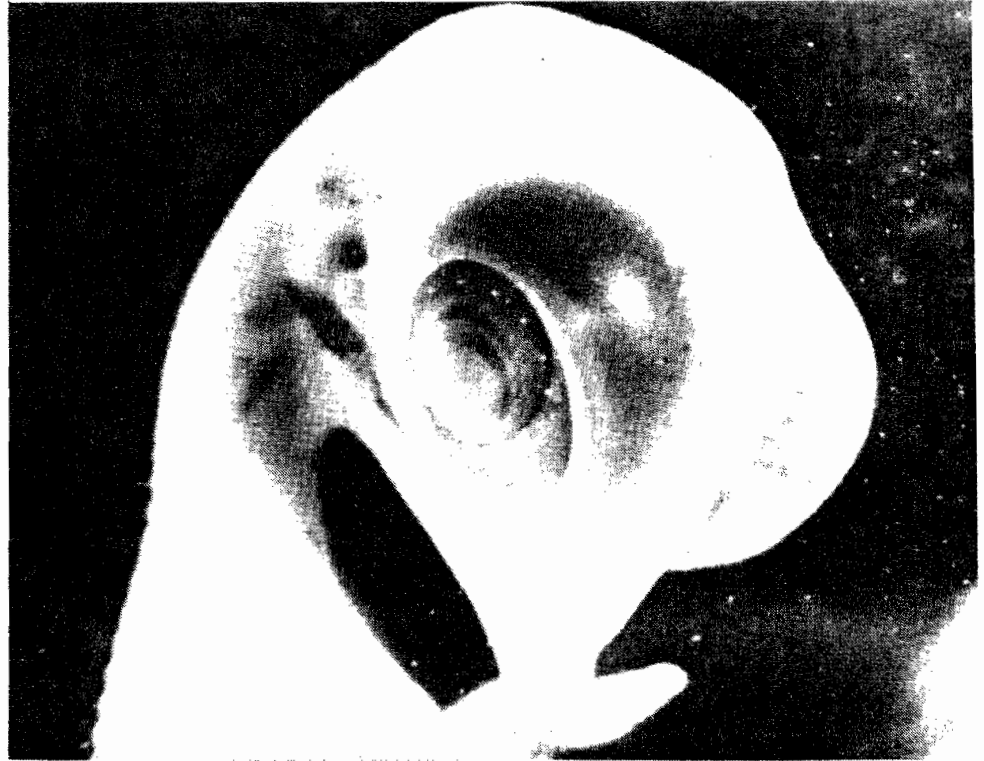


We are hoping to have a fruitful brood this year. However, as in any experiment, there is always the possibility of making mistakes. Not all of the eggs could have been fertilized, the incubator temperature could have been too high or too low, or the humidity just wasn't right could be some possible variables in our experiment.



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ABOVE- Nine day old chick fetus.



ABOVE-Children watching the slides and listening to the discussion.



fill in this chart

chick development chart

day	date	day of week	Temp Room	Temp Incubator	humidity	Wt. of egg	Comments
1	5/6/2	W	79°F	99°F	44%	0.0002	
2	5/7	Th	76°F	106°F	53%	0.003	Put in @ 11:30 am - 40°F - Not in incubator
3	5/8	F	76°F	100°F	57%	0.0025	40°F
4	5/9	S	71°F	99°F	57%	0.0025	56°F
5	5/10	S	70°F	100°F	57%	0.0025	55°F
6	5/11	M	73°F	100°F	62%	0.135	86°F
7	5/12	T	73°F	100°F	62%	0.295	88°F
8	5/13	W	73°F	100°F	62%	0.57	