

**HANCOCK SHAKER VILLAGE (HSV)  
CLASSROOM INCUBATION PROJECT**

**WHAT YOU WILL NEED to do this project**

<p><b>IN CLASSROOM</b></p> <ul style="list-style-type: none"> <li>• Small space (2ft by 2ft) on a table away from direct sunlight or heat source to reduce temperature fluctuations</li> <li>• Optional: electrical extension cord.</li> </ul>	<p><b>FROM Hancock Shaker Village (HSV)</b></p> <ul style="list-style-type: none"> <li>• Incubator</li> <li>• Fertilized eggs</li> <li>• A set up for newly hatched chicks.</li> </ul> <p>All chicks hatched may be returned to HSV.</p>	<p><b>WHEN SCHOOL IS CLOSED:</b> If incubator does not have an egg turner and temperature control, someone needs to take home eggs and incubator on weekends and holidays.</p>
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**INCUBATION PROJECT**

THE 4 MOST IMPORTANT FACTORS in INCUBATION	IN THE CLASSROOM – THE FIRST 18 DAYS	IN THE CLASSROOM -DAY 18 - HATCHING	HOW BIRDS INCUBATE EGGS	SOME INCUBATION TIMES
Temperature	<ul style="list-style-type: none"> <li>• Keep incubator at 99.50 F.</li> </ul>	<ul style="list-style-type: none"> <li>• Same temperature</li> </ul>	<ul style="list-style-type: none"> <li>• The bird's body keeps the temperature even.</li> <li>• The shell protects the contents of the egg.</li> </ul>	<ul style="list-style-type: none"> <li>• Chicken 21 Days</li> </ul>
Humidity	<ul style="list-style-type: none"> <li>• Keep water in a tray inside the incubator to maintain humidity.</li> </ul>	<ul style="list-style-type: none"> <li>• Increase water in the incubation tray.</li> <li>• Do not remove the top until eggs hatch.</li> </ul>	<ul style="list-style-type: none"> <li>• Oxygen is taken in and carbon dioxide and moisture given off during development. Two shell membranes protect the egg from bacteria and prevent rapid evaporation of moisture.</li> </ul>	<ul style="list-style-type: none"> <li>• Duck 28 Days</li> </ul>
Ventilation	<ul style="list-style-type: none"> <li>• Ventilation holes provide fresh air.</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• The shell is porous to allow the transfer of gases between the developing embryo and the environment.</li> </ul>	<ul style="list-style-type: none"> <li>• Turkey 28 Days</li> </ul>

Classroom Incubation Project (continued)

Turning	<ul style="list-style-type: none"> <li>• Turn the eggs three to five times a day from the second day to the eighteenth day. Turning the eggs prevents the blastoderm from adhering to the shell membrane.</li> <li>• Mark the eggs with an X on one side and an O on the other to be sure that all eggs have been turned</li> <li>• Or write a name on each egg.</li> </ul>	<ul style="list-style-type: none"> <li>• Stop turning the eggs on the 18<sup>th</sup> day for them to start hatching.</li> </ul>	<ul style="list-style-type: none"> <li>• The bird turns the eggs in the nest.</li> </ul>	<ul style="list-style-type: none"> <li>• Ostrich 42 Days</li> </ul>
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FACTS :

- The egg is fertilized inside the hen's body before it is laid.
- The shell protects the contents of the egg. The shell is porous to allow the transfer of gases between the developing embryo and the environment. Oxygen is taken in and carbon dioxide and moisture given off during development.
- Two shell membranes protect the egg from bacteria and prevent rapid evaporation of moisture. The white of the egg or Albumen contains protein for embryo development. The yolk contains nutrients for growth and development. The white spot on top of the yolk is called the germinal disc in infertile eggs or the blastoderm in fertile eggs.

VOCABULARY:

Fertilized egg  
Shell  
Albumin  
Yolk  
Germinal disc  
Blastoderm

Suggestions follow  
for Classroom Activities.

See separate pdf  
From pasture to product  
for Egg sequencing cards.

This project fulfills requirements for Massachusetts Science and Technology Frameworks in the following:

Life Science (Biology) Pre K-2  
Characteristics of Living Things  
*Standard 1,2,3*

Heredity  
*Standard 4*

Living Things and Environment  
*Standard 7,8*

Grades 3-4  
Structure  
Standard 3

## HATCHING BABY CHICKS

### SUGGESTIONS FOR CLASSROOM ACTIVITIES

#### BEFORE CHICKS ARRIVE:

Prepare students for the upcoming event. Present information that the class will be hatching chicken eggs. The process will take 21 days from the time the eggs are put in the incubator. Not all of the eggs will hatch into baby chicks. In order for a chick to hatch, the eggs must have been fertilized by a rooster (male chicken). The eggs purchased in a supermarket will not hatch into baby chicks as they are not fertilized. Fertilized eggs may be obtained from a farm that has hens and roosters. (Hancock Shaker Village will supply the eggs with its incubators.)

As the class does not have a female chicken (hen) to sit on the eggs, an incubator will be used to help keep the eggs warm. The incubator must be kept between 99-101 degrees F and water must be kept in the bottom of the incubator to keep the eggs moist. The eggs need to be turned 3 times during the day, one half turn each time, unless an automatic egg turner is used.

Set up a classroom chart for turning the eggs.

#### WHEN CHICKS ARRIVE:

Depending upon the number of eggs received, the children may either name one egg each, or as a class vote on names for the eggs. Besides being exciting, names help in the turning of the eggs. Teacher writes the name on each egg and puts it in the incubator.

Read to the class the book(s) about chicks. Try to stay at the part where the chicks are developing at that moment rather than jumping to the 21st day. The anticipation is great fun.

Each child should have a small journal. The blue exam type is perfect. The children could decorate the cover with something to do with the hatching process. The children may then start their entries in the journal. Various facts about the process should be included.

As a class, discuss what should go into the journal. For younger children, write their ideas on the board for them to copy. Children should feel free to add additional information.

*Example:*

*3/24/09 We put the eggs in the incubator today. Mine is named Lucky.*

*3/26/09 The incubator needs to be at 99-101 degrees F. Tom turned the eggs this morning.*

*3/28/09 The eye is formed. It will take 21 days for the eggs to hatch.*

Stop turning the eggs on the 18th day. Be sure there is water for moisture in the bottom of the incubator.

Be prepared for excitement when the eggs begin to hatch. The baby chicks can stay in the incubator overnight to dry and gain their strength. The baby chicks will need grain to eat and water to drink. An old aquarium may be used to keep the chicks contained and safe with a light for warmth. (Hancock Shaker Village will provide a brooder with a light for warmth for the hatched chicks, and will take the chicks when the project is finished.) Note: Single chicks cannot be given away. They must be in a group.

The children may want to write an article for the school newspaper and for their parents on the process. This project is very exciting for all involved. In addition, this project fulfills several requirements from the Massachusetts Science and Technology Frameworks.