Teachers Notes/Lesson Plans

BACKGROUND FOR TEACHERS
This series of activities is designed for students in years 5 to 6.

Depending on the ability level of students, modifications to some of the language used in questions and instructions may need to be made.

Many primary students are able to witness the incubation and hatching of eggs in their classroom.

• **Activity 1** is designed for students who have access to an incubator at their school. They are asked to describe how the incubator works, either in a written exercise or verbal presentation.

• **Activity 2** directs students to an Australian Poultry Cooperative Research Centre illustrated fact sheet on egg incubation. This fact sheet, while written for more advanced levels, contains a range of useful information on the incubation of chicken eggs. Students are likely to require guidance in working their way through the fact sheet, and there are 18 comprehension questions to answer on the way.

• **Activities 3 & 4** direct students to a University of Illinois webpage, where there are some simple and easy-to-understand diagrams of embryonic development inside chicken eggs.

The aim of these activities is to increase student awareness and understanding of the natural life cycle of chickens, and the conditions necessary for hatching of eggs to take place.

STUDENT ACTIVITIES

1. If you have an incubator at your school and have used it to hatch chicken eggs, describe how it works. You might describe it verbally, and, if you can, when you are describing how it works, use the incubator in your verbal presentation so you can demonstrate the different features you are describing.

2. Locate the Australian Poultry Cooperative Research Centre fact sheet on Egg Incubation by visiting the following webpage:


   Read through the various sections – your teacher, a parent or other appropriate person may need to guide you through to help you fully understand them. As you read through the sections, answer the questions that go with each one.

THE HEN’S EGG

a) What is necessary to make an egg laid by a hen fertile, so it can develop into a chick?

b) The freshly laid hen’s egg contains all the chicken embryo needs for development except two important things. What are they?

c) Incubation means providing the right conditions for a fertile egg to hatch into a chick. In nature, what provides the correct incubation conditions for eggs?

d) When breeding chicks commercially – for example in the breeding of meat chickens – how are the eggs incubated?

e) Chickens are precocial – what does this mean?
PREINCUBATION STORAGE
f) How long can chicken eggs be stored before incubation without affecting the way they hatch?
g) At what temperature should chicken eggs be stored before incubation?

INCUBATION PERIOD
h) How long is the incubation period for a chicken?
i) How long before the embryo inside a chicken egg begins to resemble a chick?

EGG TURNING
j) Are chicken eggs turned when they are hatched naturally? If so, how?
k) What is the minimum number of times eggs should be turned in a day when they are being incubated?

TEMPERATURE
l) What is the optimum temperature range for eggs during incubation?
m) What other conditions are important during incubation?
n) What is meant by making sure there are uniform temperatures in the incubator?
o) Explain what this sentence means: “Some hatcheries have eggs of only one age in the incubator but other hatcheries are multistage.”
p) As the embryos inside the eggs grow, how can this make providing uniform temperatures in the incubator more complicated?

3. Visit this webpage from the University of Illinois in the U.S.A.:
   http://msucares.com/poultry/reproductions/poultry_chicks_embryo.html
   Locate the diagrams of the development of the chicken embryo inside the egg, which show the embryo and the yolk sac inside the egg. Answer this question — either by writing your answer or drawing a diagram, or both.
   How does the size of the chicken embryo and the yolk change between:
   a) five and 10 days;  
   b) 10 and 15 days;  
   c) 15 and 20 days?

4. From the webpage in Activity 3, locate the diagrams of the chicken embryos as they appear at each of the 21 days of incubation. Working with other students in a group, make a poster using a range of different materials for display in the classroom that shows the various stages of chicken embryo development over the 21 days of incubation.

5. Visit this webpage from the website of the NSW Department of Primary Industries:
   As a class, with your teacher read through the introduction to this webpage.
   a) What is the brooding period for chickens, and how long does it last?
   b) Why do chickens need extra heat during the brooding period?
   c) What physical change in chicks results in the brooding period coming to an end?