

Secondary Curriculum — Living Eggs

Two weeks of teaching and learning with hundreds of resources

The **Living Eggs** programme provides opportunities and resources for you to engage children in learning in a very practical and exciting way. *Monitoring a Living Organism*, for example, could involve watching a plant grow. How much more exciting when the children are actually involved in a ten day programme where they can hatch their own chicks and study them first hand. When you book our programme, we provide you with a password a month in advance so you can access all our resources, including these...

Monitoring a Living Organism

Your task is to monitor chicks, from hatching to approximately one week old. There will be a number of things which you may wish to monitor. These include *temperature of housing, colour, length, weight, activity, amount of food eaten*. There are others, but they must be observable without harm to the chicks. You need to decide which variables (at least two minimum) you are going to observe and include this in your introduction to your report. As the chicks require a minimum of handling, you may work in groups to cover a number of topics, then share findings and write your report.

Characteristics of Living Things

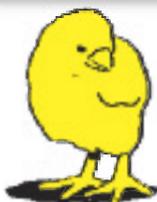
There are seven important characteristics common to *all* living things. Use the mnemonic 'Mrs Gren' to remember these characteristics: **M**ovement **R**espiration **S**ensitivity **G**rowth **R**eproduction **E**nergy **N**utrition.

Diet

How the chicks responded when fed: chick starter, grain, worms (very small), fruit, lettuce, toast, greens, seeds, cress.

Temperature, Light and Sound Experiment

Test to see what happens in the brooder box overnight, considering variables, *sound, light and temperature*. After completing your experiment, record in graph form.



Design a Hen Shelter

Design a coop, measure it up and create a scale model. Record notes, label drawings and write a list of resources required. The coop must give **shelter** from the sun, wind, rain and predators like foxes.

Living Eggs



I'm a girl
(Brown)

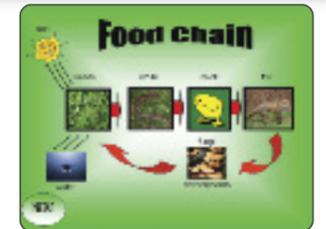


I'm a boy
(Lemon)



E Stories (PowerPoints) including

- The Living Egg Story
- Eggs
- Habitat
- Other Animals Lay Eggs
- Food Chains
- Food Chains and Webs
- Food Chain Quiz
- Characteristics of All Living Things



Selective Breeding

Breeds are produced by humans selecting chicks with particular inherited characteristics for breeding. Discuss why humans have gone to this trouble. Explain that although some varieties are bred for decorative features, most are functional in nature. Chickens today differ greatly from those of a century ago. This is mainly due to selective breeding.

Egg Experiments including

- How Many Books Can I Balance? • Extra Strong Raw Eggs • The Rising Egg • Let's Look Inside an Egg • Do Eggs Really Breathe?
- Why Do Eggs Smell? • Bungee Egg Drop • Can You Make an Egg Jump? • How is an Egg Shell Like Your Teeth? • How Can You Create a Vacuum Using Eggs? • Can You Squeeze an Egg Without Breaking It? • Balancing Raw Eggs on the Equinox • Alfalfa Egg-Head • The Great Egg Drop • How Can an Egg Get Sucked Into a Bottle? • How Can You Get the Egg Out of the Bottle?
- Investigate a Frozen Egg

Is it Fresh?

Just by looking at an egg, it is not possible to tell whether it is fresh or stale. However there are several ways to determine the freshness of an egg.

"The staff know the particular strengths of science...

Scientific skills and thinking are promoted well throughout the school...and good use is made of resources, e.g. the pupils have particularly benefited from being able to watch chicks hatch out as part of their work on Life Cycles."

"Central topics such as the current 'Living Eggs' are used very effectively to motivate learners and provide them with a real purpose for their work."

Save yourself some planning time, while at the same time have an exciting two weeks with your own chicks in a rich learning environment. Read over page to see how one school used our programme.



Biology Planning and Assessment with Living Eggs



One High School's Experience

"The **Living Eggs** programme was a wonderful opportunity to carry out an enquiry-based learning project in Year 7 including: Cells, Reproduction, Variation and Classification, Environment and Feeding Relationships and Enquiry. We were able to review knowledge learned during the year and build in investigative and enquiry skills during the project, making detailed observations, taking measurements, analysing and presenting data and making suitable conclusions.

Students were highly engaged throughout the two week project and worked in teams to look after the chicks on a twice daily basis. Their enthusiasm and involvement in lessons was a delight to see and the project stimulated great discussion and questioning from all the students involved. The hands-on aspect of the project gave all students the opportunity to take an active part in lessons and allowed students to develop their confidence in a practical setting.

We found that the science department became the most popular department in the school for two weeks and has definitely raised the profile of science in the school! We welcomed visitors from all year groups as well as most members of staff who were very keen to watch the development of the chicks and have the chance to hold a chick themselves.

The project aims to collate information from the main biology units. It gives many opportunities for the development of investigative skills and the teaching of How Science Works principles."

Observations

Observations included:

- Temperature of incubator/brooder
- Water levels and food requirements
- Number of eggs hatched
- Presence/absence of egg tooth
- Development of down and development of wing feathers



Enquiry

- Why do eggs need an incubator?
- Why do chicks need an incubator in first 24 hours?
- Why do chicks huddle together in first few days after hatching?
- What differences did you notice in the chicks' behaviour when their wing feathers began to develop?
- The final enquiry lesson should be focused on How Science Works principles and investigative skills. Students should link their observations to maintaining a constant body temperature and that the incubator, huddling behaviour and chick down all help to achieve a constant temperature of 37°C.
- Develop the idea of insulation/how animals stay warm.
- Students will carry out an experiment to show how different materials can act as insulators to maintain the temperature of water.

Students should be introduced to the following terms: Independent Variable, Dependent Variable, Control Variable, Categorical Variable, Continuous Variable, Anomalous, Reliable, Precise, Accurate

Learning About Equipment

Students should understand how the incubator works and the conditions required for hatching and healthy development of the chicks (i.e. temperature/humidity/little disturbance). This section was linked to the final enquiry centred around maintenance of body temperature.



Understanding Reproduction

Students reviewed their knowledge of reproduction and learnt about the reproduction of the embryo. Students extended this knowledge to discuss reproduction in other animals. This section was also linked to Cells and Variation and Classification looking at differences in reproduction, types of egg produced, development of offspring, etc.

Data Analysis

Students produced growth curves for chicks from data collected over the course of the project. Why do chicks grow so quickly? How independent are the chicks compared to a human baby? Why is this independence important?

Extension:

Comparison of growth curves for Roosters vs Hens. Calculation of mean data for Roosters vs Hens. This section develops understanding of line graph drawing, identification of independent and dependent variables, calculation of mean data and drawing conclusions from data (How Science Works principles).

Recording Information

Students recorded detailed observations in a twice daily diary as well as individual diaries during lessons. Students recorded mass of chicks from hatching to end of project on a daily basis.

Producing Timeline

Students produced individual timelines from hatching to transfer into brooder using a photograph jigsaw. They produced a logical sequence of events which was fully labelled and explained.

