

# Skillathons

Underlined items could be in a Skillathon kit

## 1. Tools of the Trade: What do these tools measure?

Goal: to identify the units that instruments measure and the tool needed to solve a particular problem.

- Activity 1: Match Tools with Purpose of Tools Cards
  - Measuring Tools: ruler, spring scale, graduated cylinder, digital scale, calendar, thermometer
  - Purpose of Tools Cards (each card with one word): weight (2 cards) length, volume, time, temperature.
- Activity 2: What is the unit of measure? Match Tools with Units of Measure Cards
  - Use Measuring Tools from Activity 1
  - Units of Measure Cards (each card with one word and abbreviation): grams (g) (2 cards), ounces (oz), centimeters (cm), inches (in), milliliters (ml), days, degrees.
- Activity 3: You are trying to find out....which tool do you use? Match Tools with Task Cards.
  - Use Measuring Tools from Activity 1
  - Task Cards (each card with one scenario):  
You are trying to measure how long it takes to incubate eggs. For this task, you need.....  
You are trying to measure a chick. For this task, you need....  
You are trying to measure how much space an egg takes up. For this task, you need.....  
You are trying to see how warm it is in the incubator. For this task you need...

## 2. Life Cycles: Do you know the life cycle of a chick? Of other animals?

Goal: to identify the life cycle of a chick and at least 2 other animals.

- Activity 1: Take the Chicken Envelope. (4 cards: egg, baby chick, young chicken, mature chicken). Remove the cards and place them in the correct order to show that you know the life cycle of a chick.

- Activity 2: Choose 2 other envelopes, remove the life-cycle cards and place them in the correct order.

Envelope 1/ Human: baby, child, teen, grown-up

Envelope 2/ bird: egg, baby in nest, small bird, mature bird

Envelope 3/ butterfly: egg, larva/caterpillar, pupa, butterfly

Envelope 4/ Penguin: egg, baby, small penguin, adult penguin

### **3. Death of a Chick: Can You Troubleshoot a Problem?**

Goals: chart-reading, given a collection of evidence resulting from an event, seek clarification and propose an explanation for the event.

Activity 1: Give students Sample Records 1-3. Ask them to analyze the data and propose what happened to the chicks who did not hatch. Each record should have an explanation.

Several of your chicks died. Look at the log sheet to see if you can tell why.

1. Identify the day a problem occurred.
2. What data indicates a problem.
3. What happened that may have caused the problem.

### **4. Chick Candling/The Developing Embryo: What's in an egg?**

Goals: use candler and rank order eggs according to development pictures inside plastic eggs.

Activity 1: Use candler (flashlight with towel) to look inside 6 different colors of plastic eggs with small pictures inside of different stages of chick development. Sequence colored eggs.

### **5. Classify Animals Using a D Key: How do you classify animals according to structures?**

Goal: design a dichotomous key using animal structures.

Classify your animals. Explain how your d-key works.

Activity 1: Use 4 animal cards to create your own D-key. Animals: Bird, Dog, Rabbit, Chick. (simple d-key printed for tabletop)

### **6. Design Technology: Which engineered design is the best?**

Goal: identify best design based on prior knowledge

Paper with 4 drawings of different Egg Catcher Designs

Activity 1: Study 4 Egg-Catcher Designs. Identify the best design--the one most likely to catch an egg without breaking it. Tell why

Activity 2: Identify the worst design--the one most likely to be unable to catch an egg or to break the egg. Tell why

### 7. Structure and Function: Which Egg Shape is the Best?

Goal: choose the best structure for a specific function

Activity 1: Use the Function Chart and the sample egg shapes (cards or blocks) to decide which shape is the best for each identified function.

Function	Which shape is best? (sphere, cube, cone, 3D rectangle, 3D oval)	Why? Give a reason for your answer.
Most comfortable for the chick to lay.		
Least likely to roll off of a counter while you are making a cake.		
Easy for the chicken to turn so the egg does not roll out of the nest.		
Most comfortable for the chicken to sit on.		

### 8. The Poultry Industry: What does a modern egg farm look like?

Activity 1: Sort the photos into Modern Egg Farm and Old-fashioned Egg Farm.

(Collect photos from movie? Freeze frame?)

Option for the future

Permeability

Goal: student understand that air/water can move in and out of egg. Learn that air and moisture move in and out through pores in the shell

Materials: beakers filled with water, 4 eggs of varied ages (1-2 days, 2 weeks, 4 weeks, 6 weeks, unrefrigerated), paper towels, scale for measuring weighing eggs, paper, spoons to lower eggs in water.

Procedure:

1. weigh eggs and candle eggs
  2. place eggs in beakers of water
  3. draw where each egg floats
  4. think: egg with largest air sack floats. Why? Heaviest egg stays on bottom. Why?
  5. Osmosis exercise: student place tiny portion of paper towel into water.
  6. Think: water travels from beaker into dry paper towel. Why?
- Goal: Balance of nature draws water from wetter to drier location "osmosis"