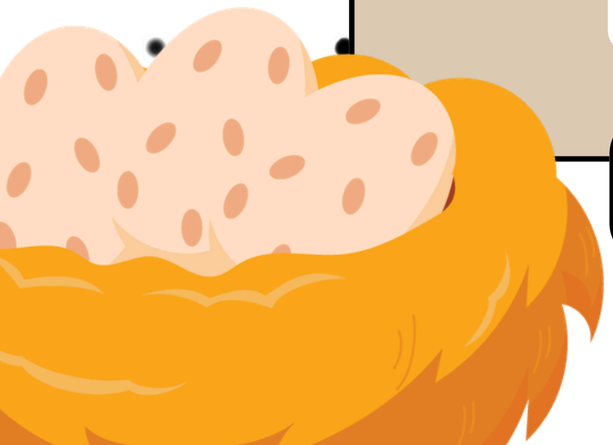
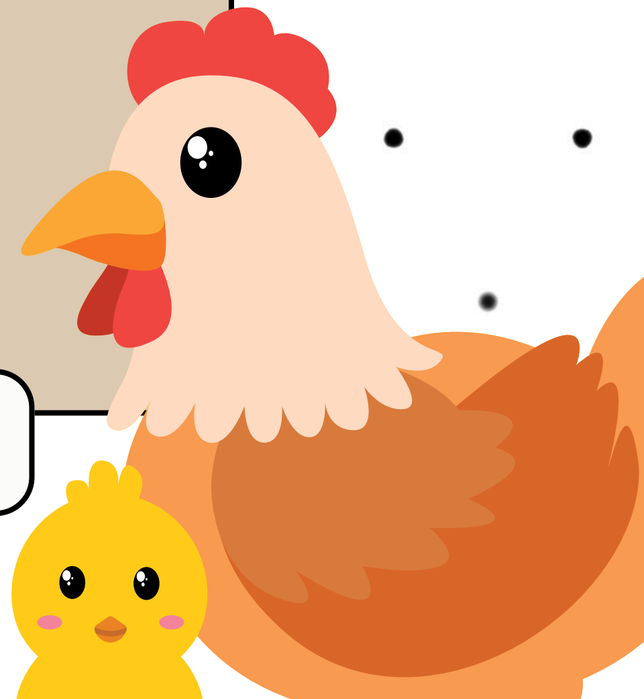
Cheep Cheep! Egg-citing

CHICKEN HATCHING

Michelle O'Neall





MY BACKGROUND

Michelle O'Neall
Education
Specialist

Illinois AGRICULTURE in the Classroom℠

Degree: Elementary Education, UIUC
Experience: 10 years Middle School Math, Science, STEM

Ag Connections:
10 years married to a grain farmer; specialty corn and soybeans

ILLINOIS AITC

Lessons + Ag Mags + Presentations + Resources

90 County Coordinators

help us reach

600,000+ Students in Illinois

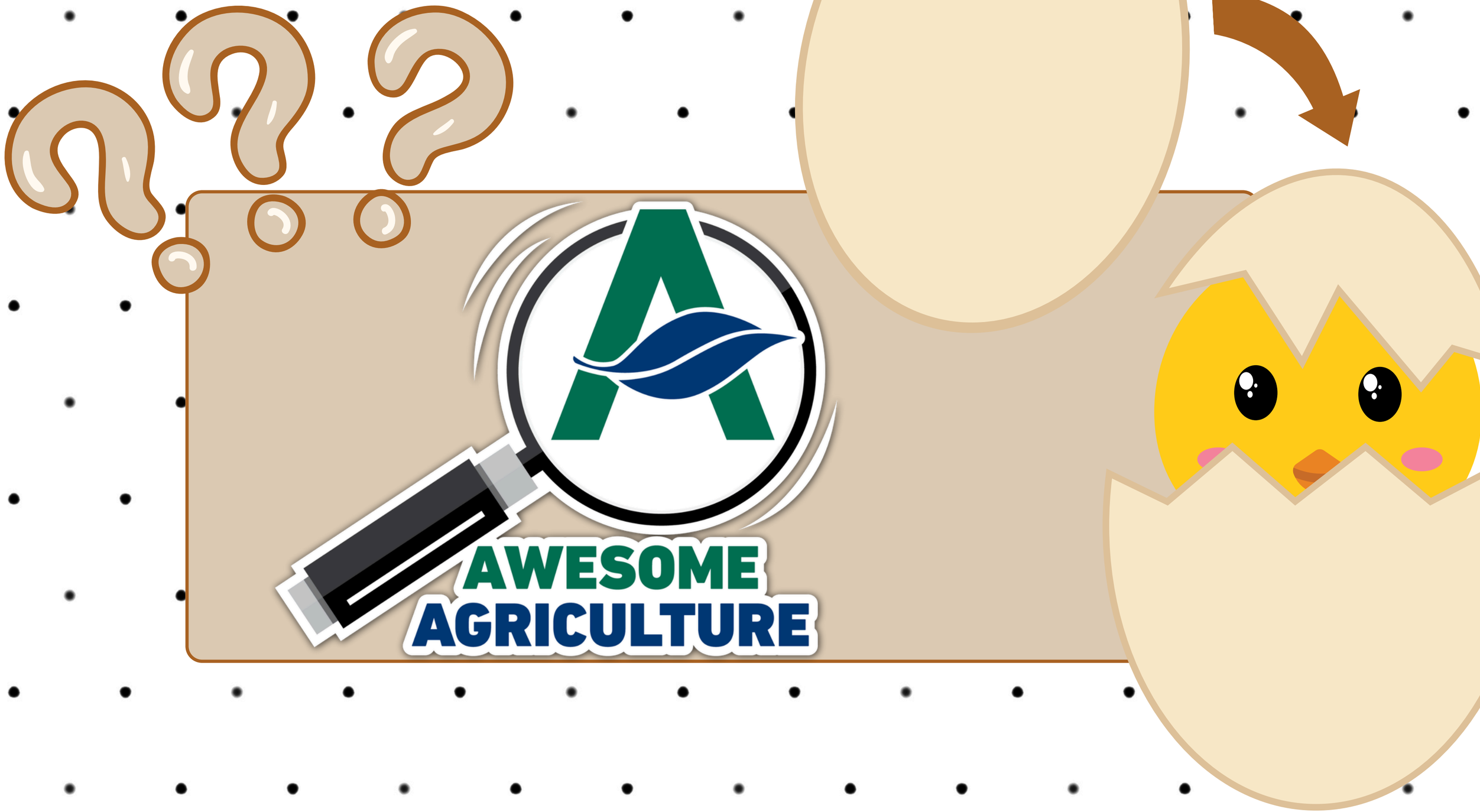
OBJECTIVES

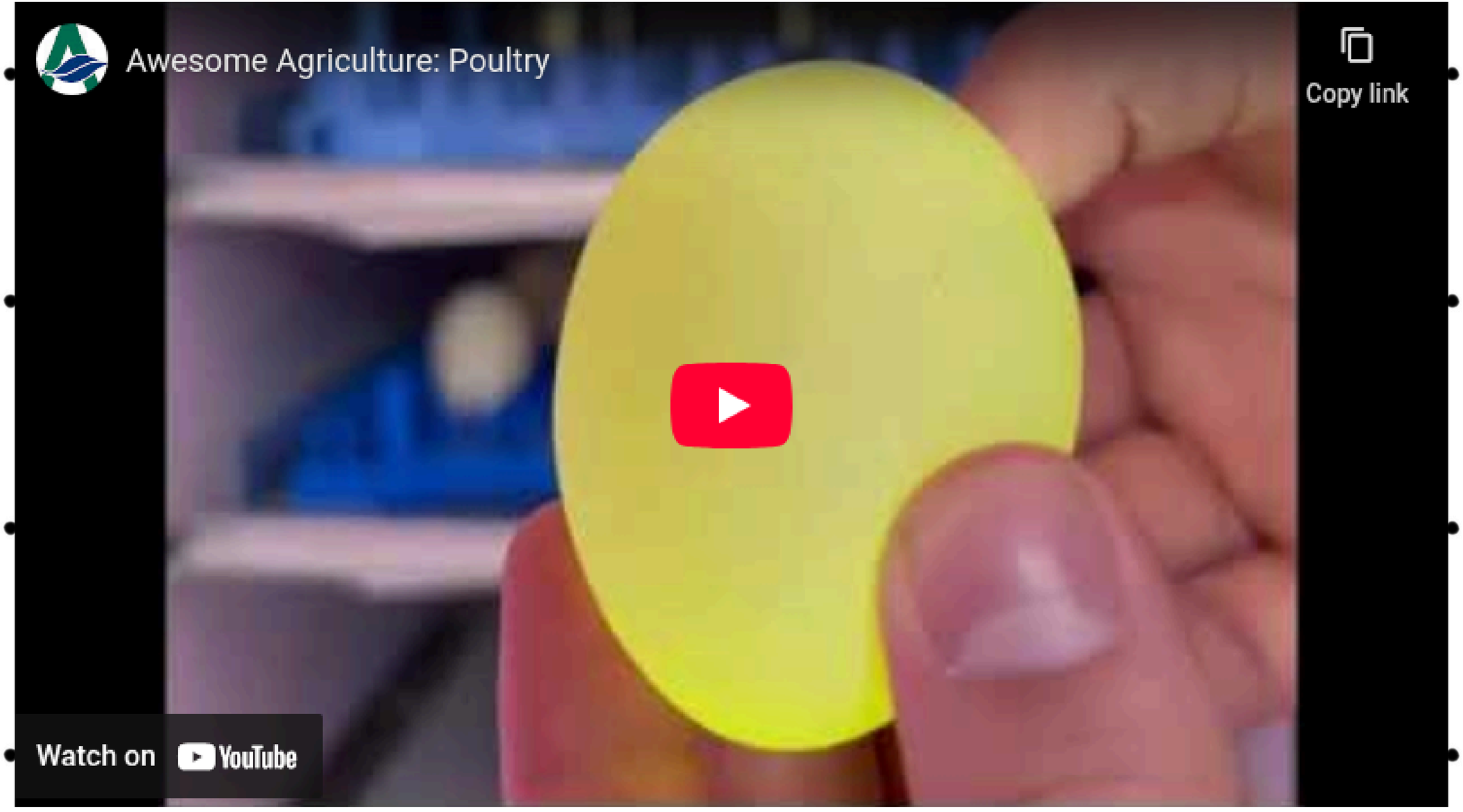
1. Discover new chicken hatching and life cycle activities.

2. Gain knowledge and confidence to engage students in hands on learning.

3. Explore cross-curricular ideas, materials and book recommendations.

CAN AN EGG FROM THE GROCERY STORE HATCH A BABY CHICK?


AWESOME
AGRICULTURE


Awesome Agriculture: Poultry
Copy link
Watch on YouTube

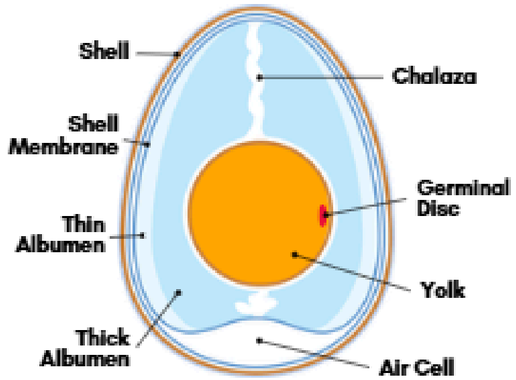
INCUBATION TIPS & TRICKS

Total Days to Hatch: 21

GENERAL TIPS AND TRICKS

- If using an automatic egg turner or an incubator that holds eggs vertically, always place them in large end up. There is an air cell in this end that needs to stay at the top.
- You are welcome to candle the eggs using a flashlight or an egg candler. This works best when all the lights in the room are off!
- When you open the incubator, always do so as quickly as possible so as not to let out heat and humidity.

EGG ANATOMY



INCUBATOR REQUIREMENTS

	Temperature	Humidity
Days 1 - 17	99.5° F (temporary fluctuation between 99° - 101° will be okay, just try to stay as close to 99.5° as you can)	45% - 55%
Days 18 - 21		65% - 70% (increased humidity in the last 3 days softens the shell and allows the chicks to hatch easier)

EGG TURNING - MANUAL

- Eggs must be turned 3x a day to ensure even incubation throughout the egg.
- **Do not turn the eggs after day 18.** This way the chicks won't be disturbed while they're trying to hatch!

EGG TURNING - AUTOMATIC

- Some incubators have an automatic egg turning tray, which will slowly rotate the eggs for you throughout incubation.
- **Take out the turner on day 18** & lay eggs horizontally in the incubator for hatching.

PREPARING FOR HATCH

- On day 18, stop turning the eggs, turn up the humidity and do not open the incubator again until ALL chicks are hatched. The eggs are "on lockdown" during these last few days.
- Wait for ALL chicks to hatch & dry off before removing any... they don't need food or water for up to 48 hours because they have absorbed their yolk just before hatching. If any eggs have not started to "pip" (initial break through the shell) by day 23, they are not likely to hatch.

EGG INCUBATION

Step 1: Contact your County Coordinator

Step 2: Secure fertilized eggs

- County Coordinators can help with this

Step 3: Use the Incubation Tips & Tricks page as your guide

- Don't be afraid!

EMBRYOLOGY EXPLORATION

- 6 egg-citing activities to take you through 3 weeks of egg incubation
- 2 activities a week
  - 1 activity on paper
  - 1 hands-on lab experiment
- 1 convenient booklet to keep it all together

Name: _____

EMBRYOLOGY EXPLORATION

K-2 Edition

a student workbook
from
Illinois AGRICULTURE in the Classroom℠

HATCH PREDICTION

- Students use number sense to make a prediction
  - Give them ownership; not all predictions need to be the same
- Write a complete sentence about their prediction
- Use numbers and operations in base 10 understanding to compare prediction with classmate

***Teachers, expect 50-85% of eggs to hatch

HATCH PREDICTION

Predict the number of eggs that will hatch!

Hatch rate refers to the number of eggs that hatch from a "set" placed in an incubator at one time. Because not all eggs in a set were laid or fertilized at exactly the same time, and because not all incubators provide perfect conditions 100% of the time, there is no guarantee that every egg placed in an incubator at once will hatch.

Number of eggs we placed in the incubator:

Number of eggs I think will hatch:

Number of eggs I think will hatch: out of Number of eggs placed in the incubator: eggs will hatch.

Write one complete sentence about your predicted hatch rate (*I predict that...*):

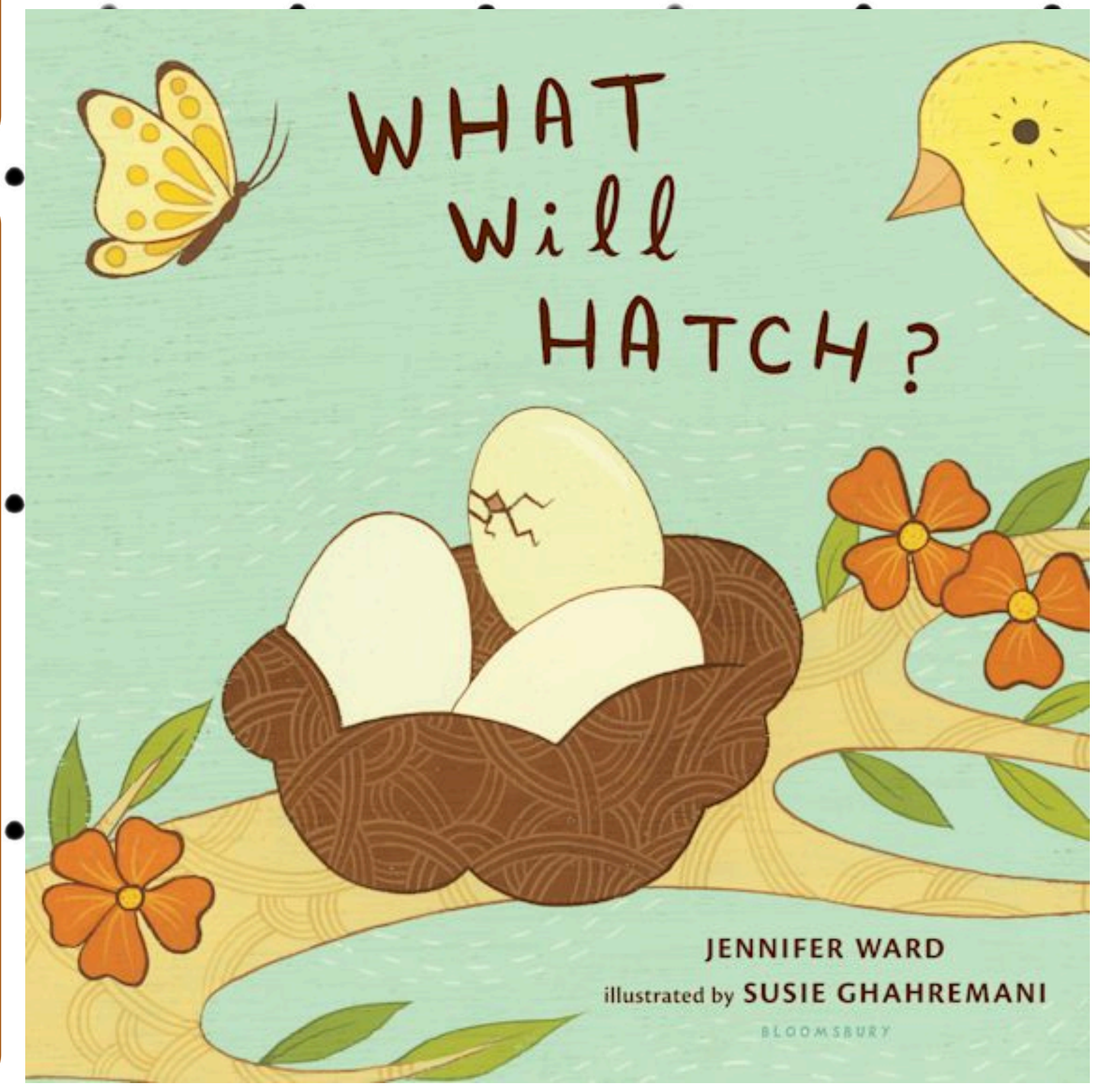
Compare your prediction to a classmate's prediction. Write >, <, or =.

Number of eggs I think will hatch: >, <, or = Number of eggs someone else thinks will hatch:

HATCH PREDICTION

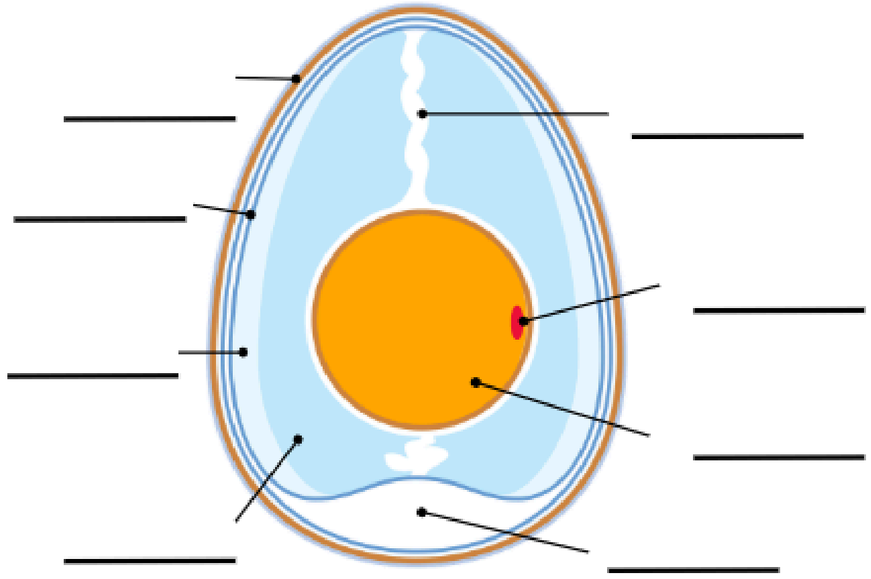
- Students use number sense to make a prediction
  - Give them ownership; not all predictions need to be the same
- Write a complete sentence about their prediction
- Use numbers and operations in base 10 understanding to compare prediction with classmate

***Teachers, expect 50-85% of eggs to hatch



EGG ANATOMY

Read the passage below and complete the egg anatomy diagram by writing the number of the terms on the lines.



An egg has eight basic parts. The **shell(1)** is the hard outer surface that protects the inside. The color of the eggshell depends on the breed of chicken that laid it. Just inside the shell is a thin, flexible **shell membrane(2)** that protects the egg against outside bacteria.
The clear liquid inside the egg – sometimes called the "egg white" – is called the albumen. The **thick albumen(3)** directly surrounds the yolk, and the **thin albumen(4)** provides an extra barrier between the thick albumen and the shell.

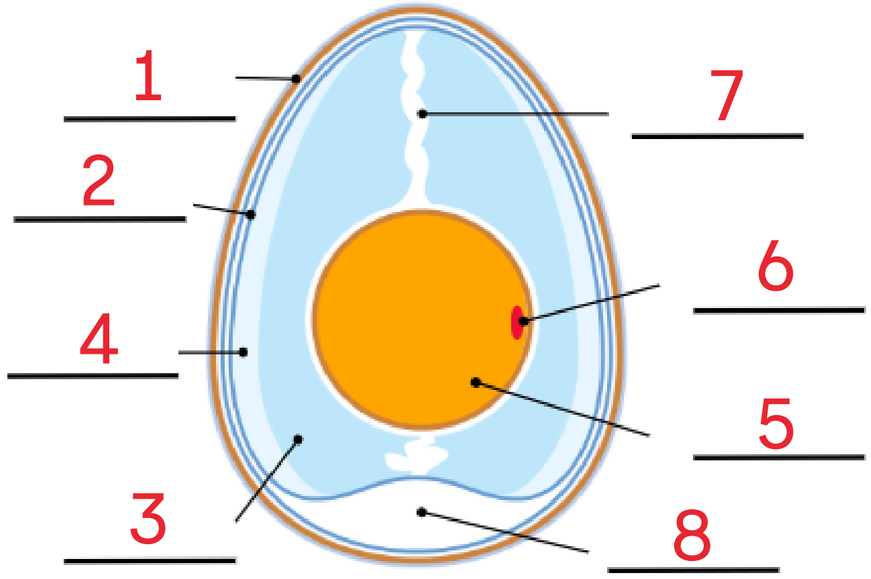
The yellow/orange center of the egg is called the **yolk(5)** and is the major source of vitamins and minerals in the egg. A small spot called a **germinal disc(6)** is found on the outside of the yolk. If the egg is fertilized, the germinal disc is what will go on to develop into a chick.
A white cord-like twisted strand called the **chalaza(7)** (pronounced "ka-LAY-za") holds the yolk in the center of the egg. Finally, near the larger end of the egg is an **air cell(8)**, which allows the baby chick to breathe inside the egg.

EGG ANATOMY

- Read the passage together
- Use the descriptive words in the text and prior knowledge to identify the parts of the egg
- Practice using a diagram to identify specific parts of the egg

EGG ANATOMY

Read the passage below and complete the egg anatomy diagram by writing the number of the terms on the lines.



An egg has eight basic parts. The **shell(1)** is the hard outer surface that protects the inside. The color of the eggshell depends on the breed of chicken that laid it. Just inside the shell is a thin, flexible **shell membrane(2)** that protects the egg against outside bacteria.
The clear liquid inside the egg – sometimes called the "egg white" – is called the albumen. The **thick albumen(3)** directly surrounds the yolk, and the **thin albumen(4)** provides an extra barrier between the thick albumen and the shell.

The yellow/orange center of the egg is called the **yolk(5)** and is the major source of vitamins and minerals in the egg. A small spot called a **germinal disc(6)** is found on the outside of the yolk. If the egg is fertilized, the germinal disc is what will go on to develop into a chick.
A white cord-like twisted strand called the **chalaza(7)** (pronounced "ka-LAY-za") holds the yolk in the center of the egg. Finally, near the larger end of the egg is an **air cell(8)**, which allows the baby chick to breathe inside the egg.

EGG ANATOMY

- Read the passage together
- Use the descriptive words in the text and prior knowledge to identify the parts of the egg
- Practice using a diagram to identify specific parts of the egg

EGG DISSECTION

Carefully crack open a grocery store egg and identify and describe the parts.

Draw the contents of your egg in the circle below and label the parts.

A hint: some parts of the egg might only be visible *inside* of the shell!

Describe the look and feel of each of the parts of the egg.

shell	
shell membrane	
thick albumen	
thin albumen	
yolk	
germinal disc	
chalaza	
air cell	

EGG DISSECTION

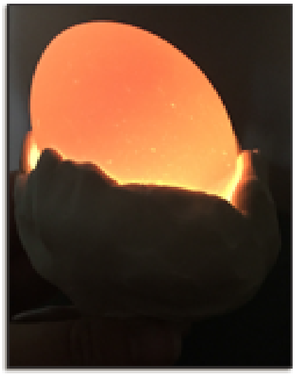
- Use the Egg Anatomy diagram from previous page
- Draw and identify parts before any touching
  - Toothpick or chopstick might be useful as probe
- Discus air cell and why you can't see it
- WASH YOUR HANDS

EGG DISSECTION

- Use the Egg Anatomy diagram from previous page
- Draw and identify parts before any touching
  - Toothpick or chopstick might be useful as probe
- Discus air cell and why you can't see it
- WASH YOUR HANDS

CANDLING

DAILY INCUBATION OBSERVATION



- Keep a record of incubation information each day
- Candle the eggs around day 4
- use high-intensity LED flashlight and modeling clay
- Works best with white eggs
- Brush dirt away. DO NOT WASH EGGS

DAILY INCUBATION OBSERVATION

Keep a record of incubation information each day.

Day	Date	Temp-erature	Humidity	Life Cycle Image	Observations
ex.	April 4, 2024	99.5°F	60%		Temperature and humidity are good! Egg 6 looks like it's bigger than the rest. I wonder why...
1					
2					
3					
4					
5					
6					
7					

DAILY INCUBATION OBSERVATION

Theme Party Favor Hunt Classroom Prize (1.6 x 2.4 inch)

4.2 ★★★★☆ (40)

$20.99

Ages: 6 years and up

prime

FREE delivery **Tue, Feb 17**

Add to cart

YTYKINOY 30pcs 2-3/8" Blank White Plastic DIY Easter Eggs

4.4 ★★★★½ (310)

$9.99

Ages: 5 years and up

prime

FREE delivery **Tue, Feb 17**

Add to cart

Baaxxango 100 Pieces Empty Easter Eggs,Blank White Plastic Eggs,Fillable Empty DIY Easter Eggs Bulk for Filling Easter Candy,Easter Theme Party Favor,Easter Basket Stuffers Fillers

4.3 ★★★★½ (18)

$14.99 Typical: $15.99

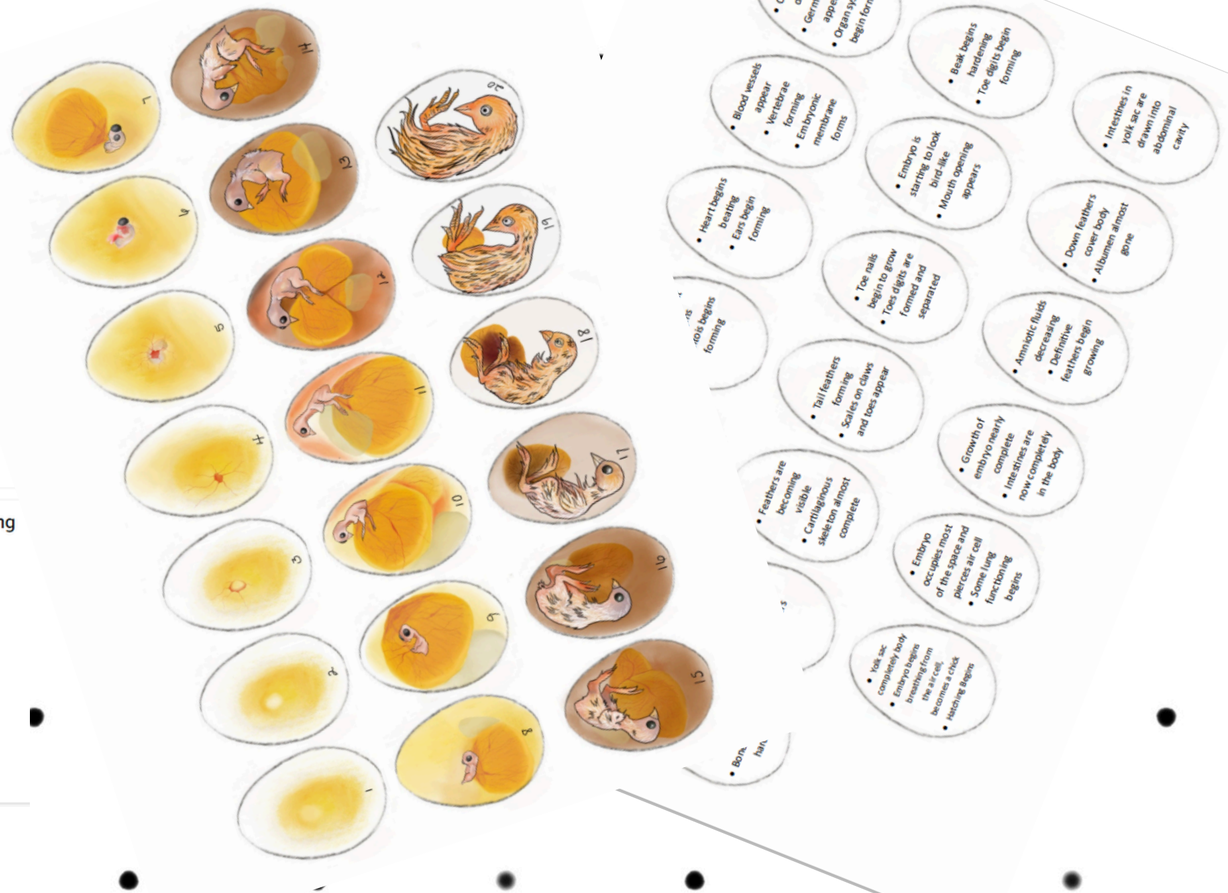
Ages: 36 months - 3 years

Coupon price $13.49

prime

FREE delivery **Tue, Feb 17**

Add to cart



SHELL POROSITY

Conduct a fun experiment to learn about an egg shell's porosity.

What does an egg shell look like to the naked eye?	What does an egg shell look like under a magnifying lens?

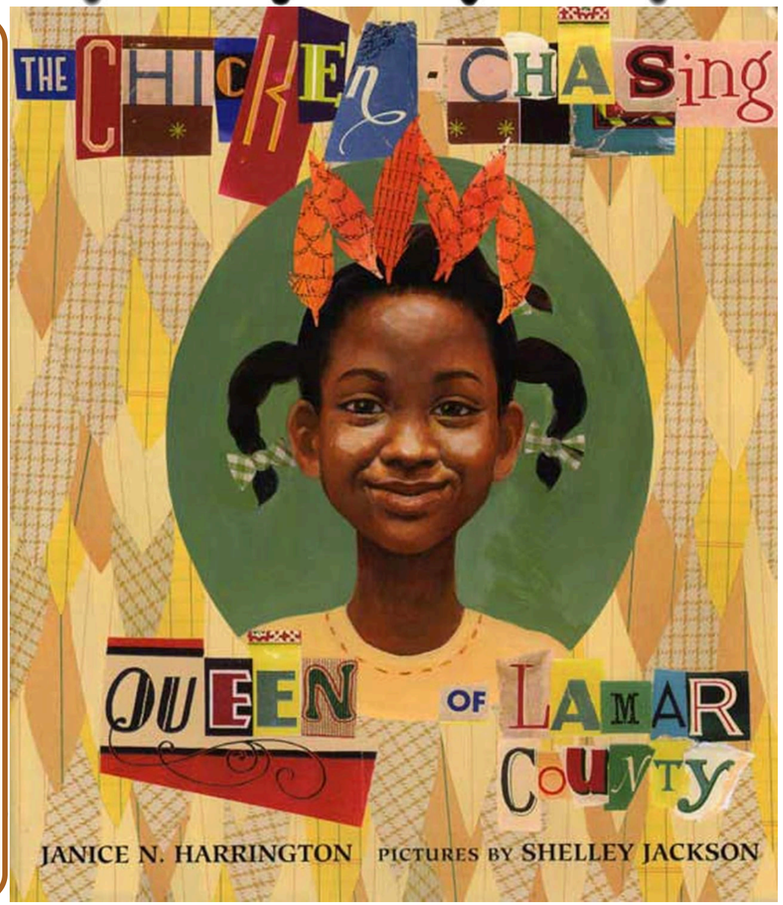
Membrane Permeability Observation

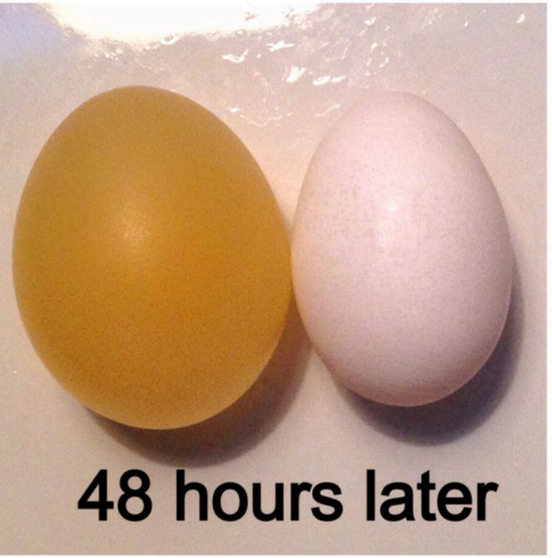
	Corn Syrup	Water
hypothesis* *(will the egg's weight increase or decrease?)*		
beginning weight (g)		
15-minute weight (g)		
30-minute weight (g)		
60-minute weight (g)		
90-minute weight (g)		

Was your hypothesis* correct? Form a conclusion as to why or why not using the data you have observed on this page.

SHELL POROSITY

- Prepare ahead
  - Soak eggs in vinegar
- Observe eggshell and make prediction
- Shows that air and water able to pass through shell for the developing embryo



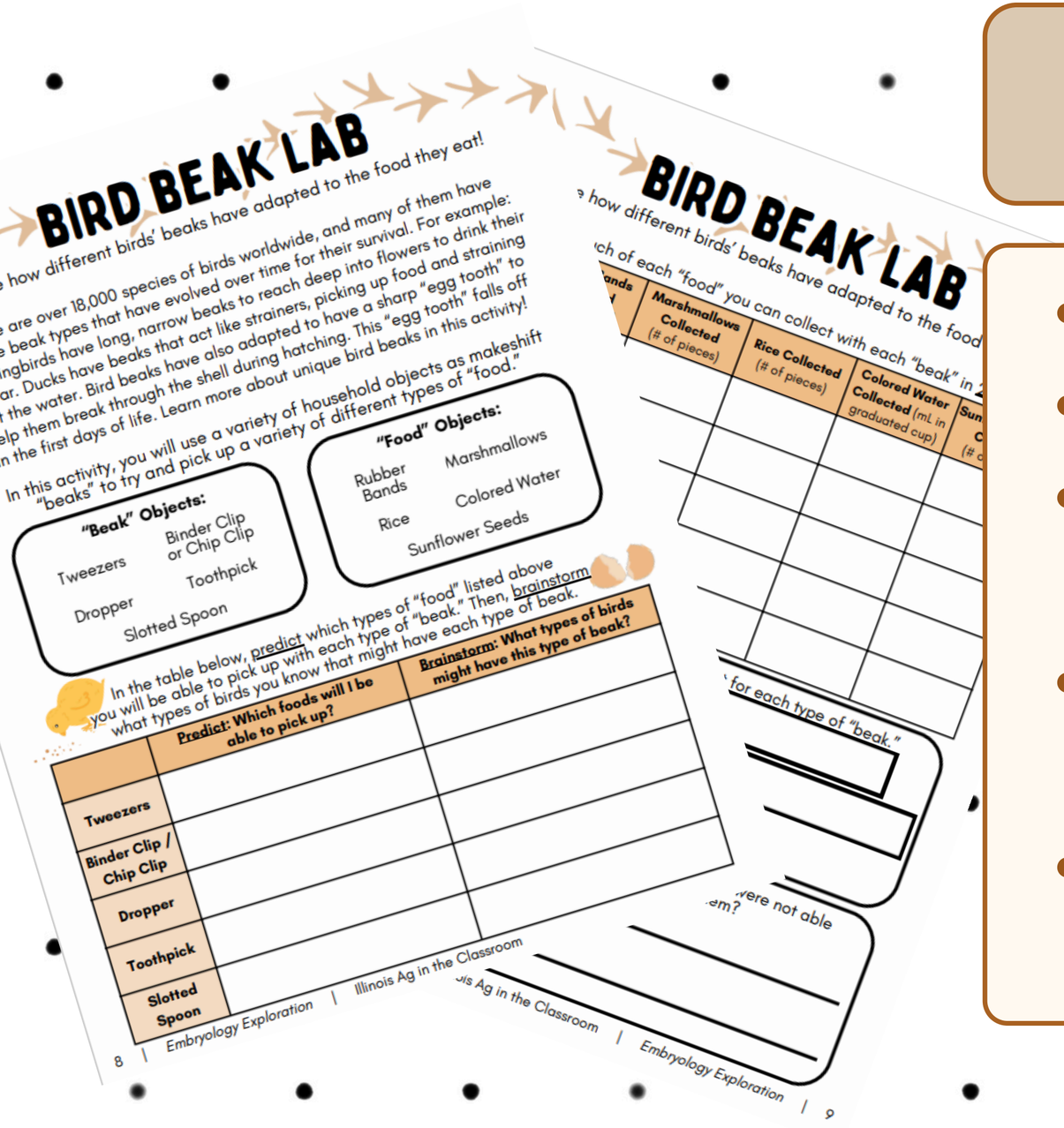


SHELL POROSITY

What should happen?

- As the eggs soak, the egg placed in water will swell, becoming noticeably larger and heavier.
- The egg placed in the corn syrup will become smaller and lighter.

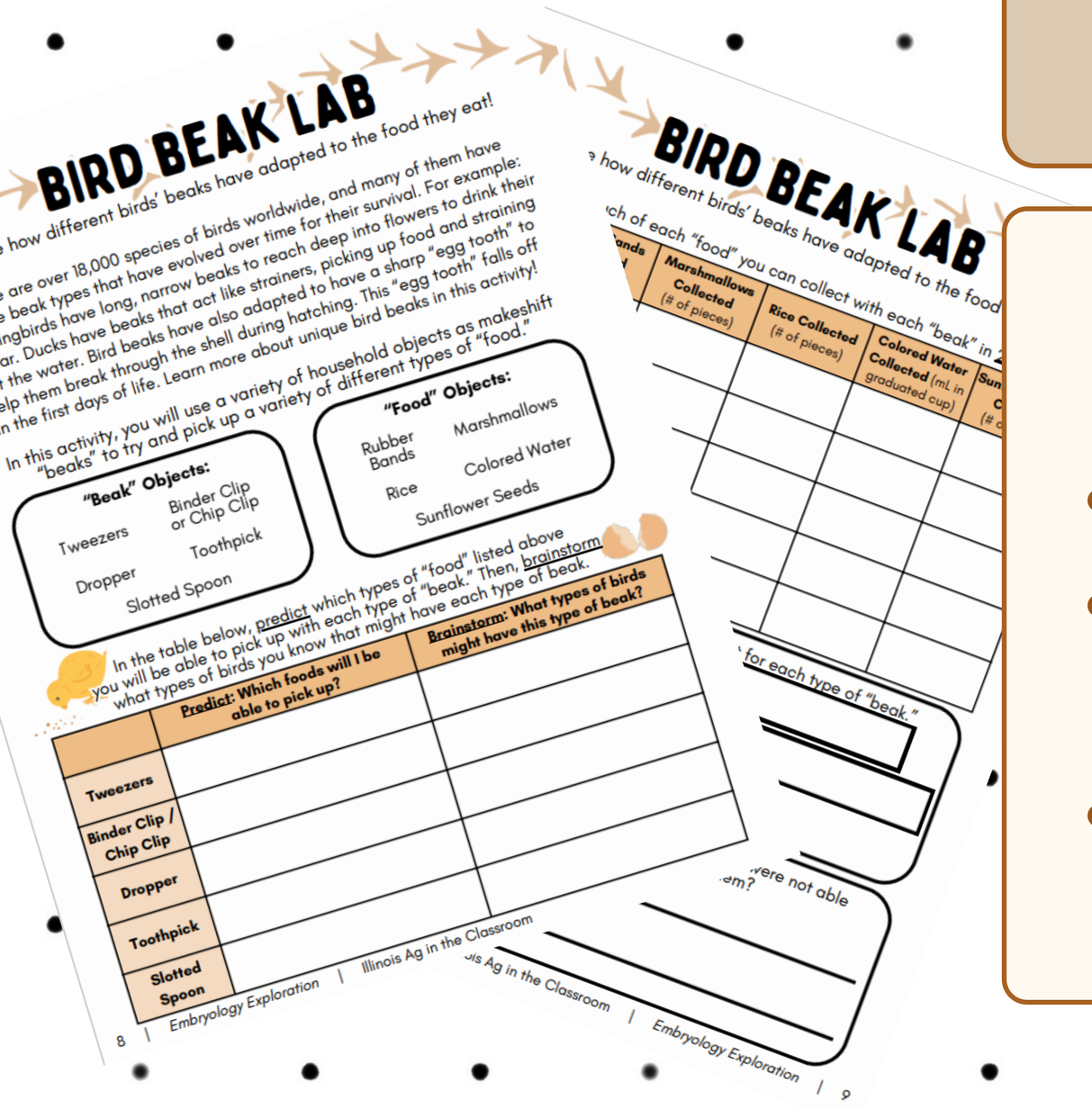
***More ways to show porosity of egg when you use the full lesson plan.



BIRD BEAK LAB

- Make predictions
- Groups of 5 at a station
- Pick 1 "beak" and one "food" to start with
- 20 seconds on the clock; try to collect food
- Record amount collected

BIRD BEAK LAB



- Repeat for remaining foods
- When all foods have been collected, pass your "beak"
- Repeat for all 5 "beaks"

BIRD BEAK LAB

Suggested Results

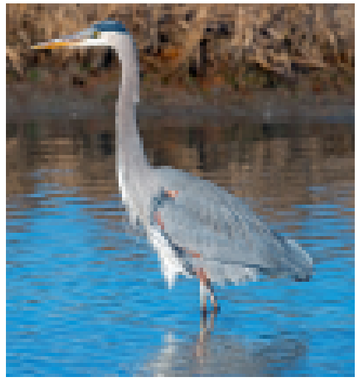
While many "beaks" *should* be able to pick up more than one "food," these are the suggested answers for which "food" is optimal for each "beak," if only one can be identified.

	Suggested Result: Optimal "Food"
Tweezers	Rice (representing bugs)
Binder/Chip Clip	Sunflower Seeds (representing seeds)
Dropper	Colored Water (representing nectar)
Toothpick	Marshmallows (representing soft foods like fruits and fish)
Slotted Spoon	Rubber Bands (representing worms)

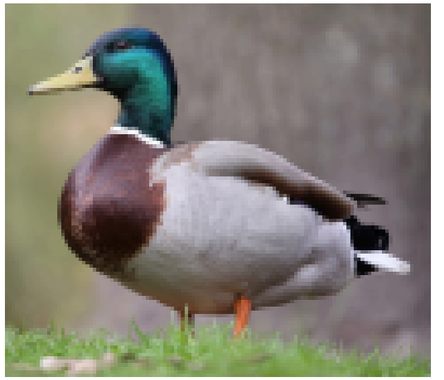
BIRD BEAK LAB

Bird Beak Examples

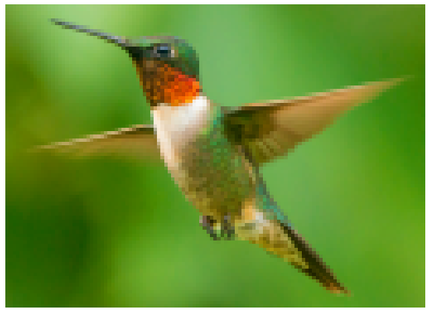
Insect-Catching Beak
(Tweezers)
Yellow Warbler



Striking Beak (Toothpick)
Great Blue Heron



Straining Beak (Slotted Spoon)
Mallard Duck



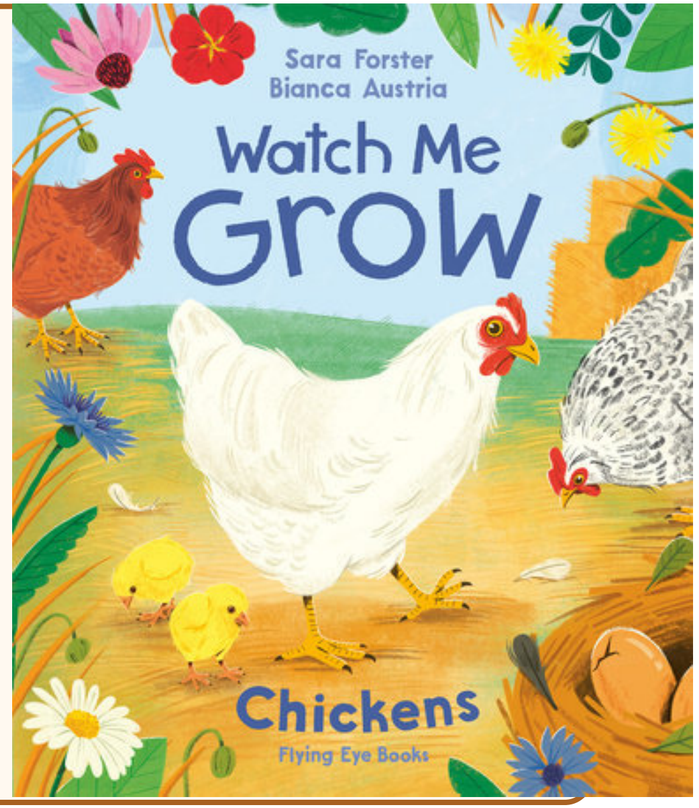
Nectar-Sipping Beak
(Dropper)
Hummingbird

Seed-Cracking Beak
(Binder / Chip Clip)
Northern Cardinal

Chicken and turkey beaks are considered Generalist or Grain-Eating beaks. In barns, chickens and turkeys eat crumbled or pelleted feed provided by farmers. This feed is made primarily of corn and soybean ingredients and contains all the vitamins and minerals they need. Additionally - when free ranging - they eat other plants, fruits, and slow-moving bugs.

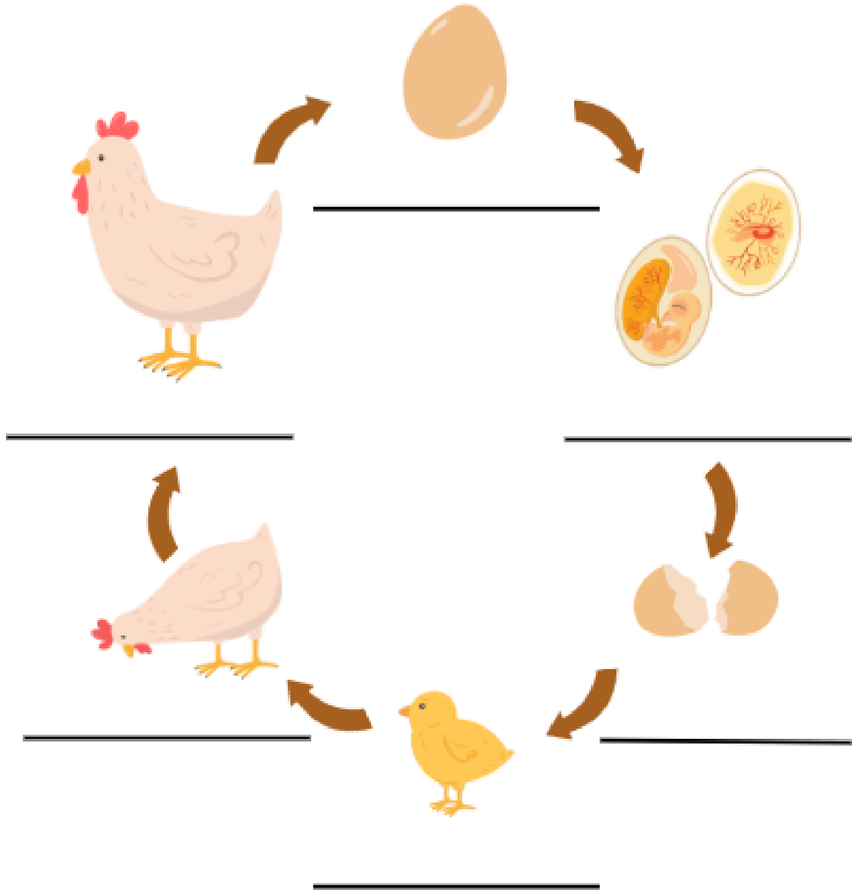
CHICKEN TERMINOLOGY

- A few simple terms
- Reviews life cycle
- Pairs great with a book



CHICKEN TERMINOLOGY

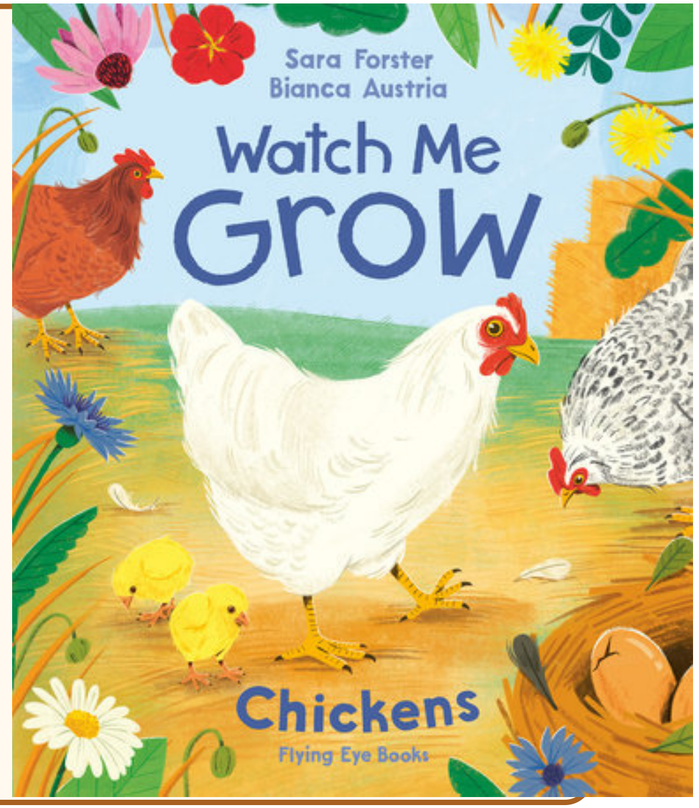
Use the word bank to correctly label each part of the chicken lifecycle.



Chick	Egg	Pullet
Embryo	Chicken	Hatch

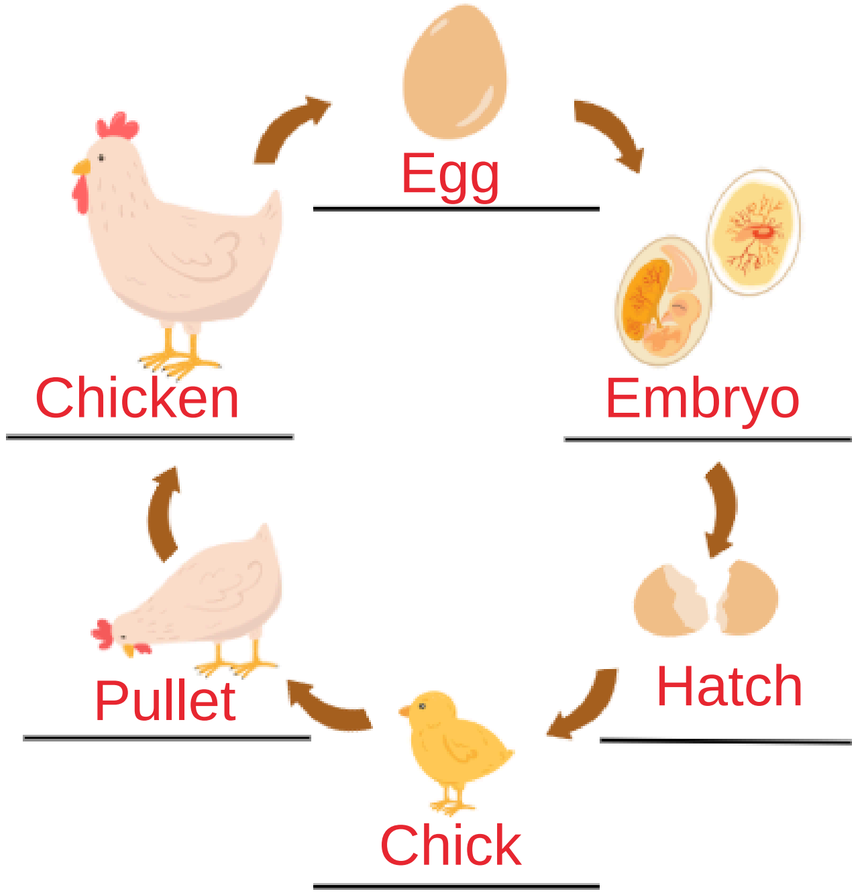
CHICKEN TERMINOLOGY

- A few simple terms
- Reviews life cycle
- Pairs great with a book

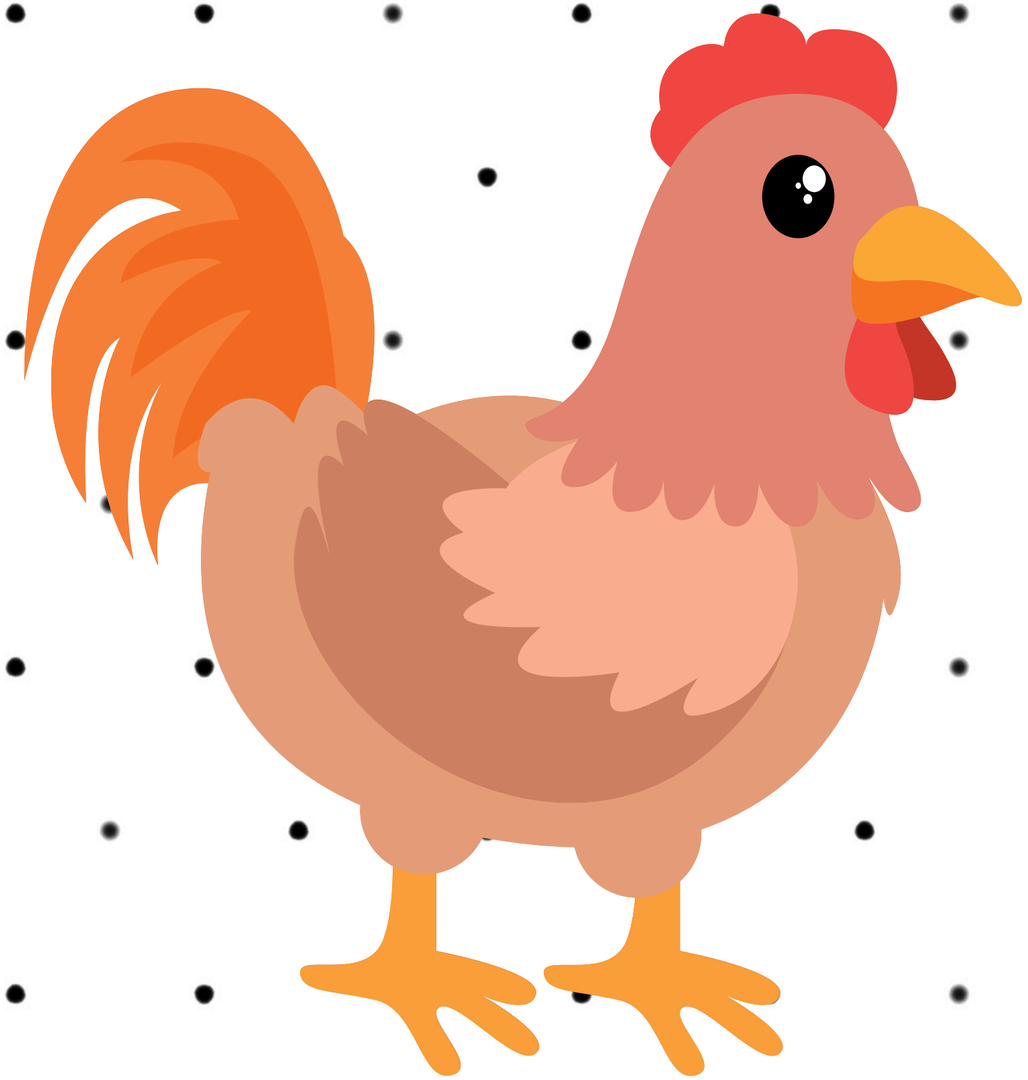


CHICKEN TERMINOLOGY

Use the word bank to correctly label each part of the chicken lifecycle.



Chick	Egg	Pullet
Embryo	Chicken	Hatch



FUN FACTS

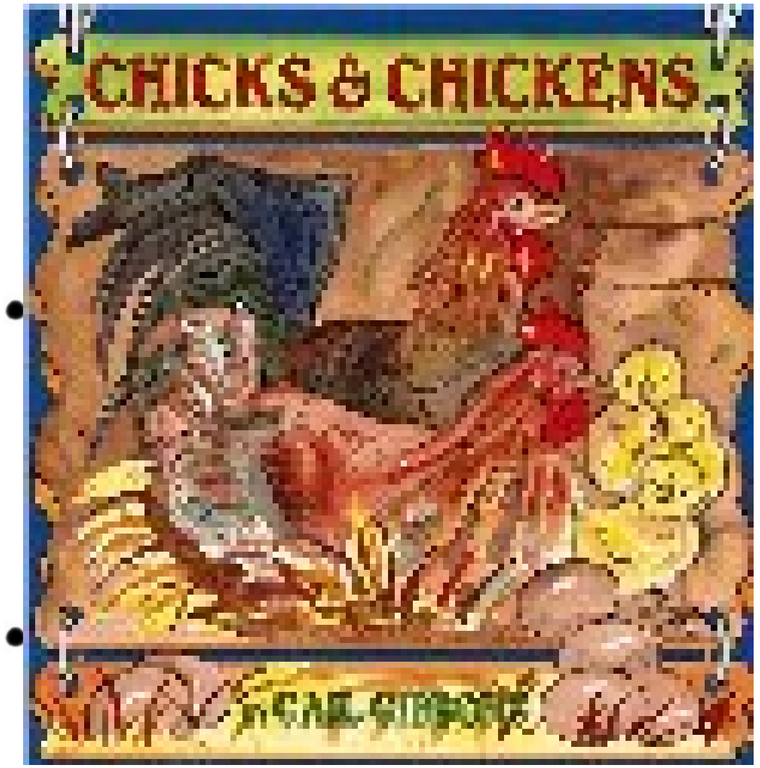
A chicken egg's shell has tiny pores that allow air and moisture to pass through for the growing chick.

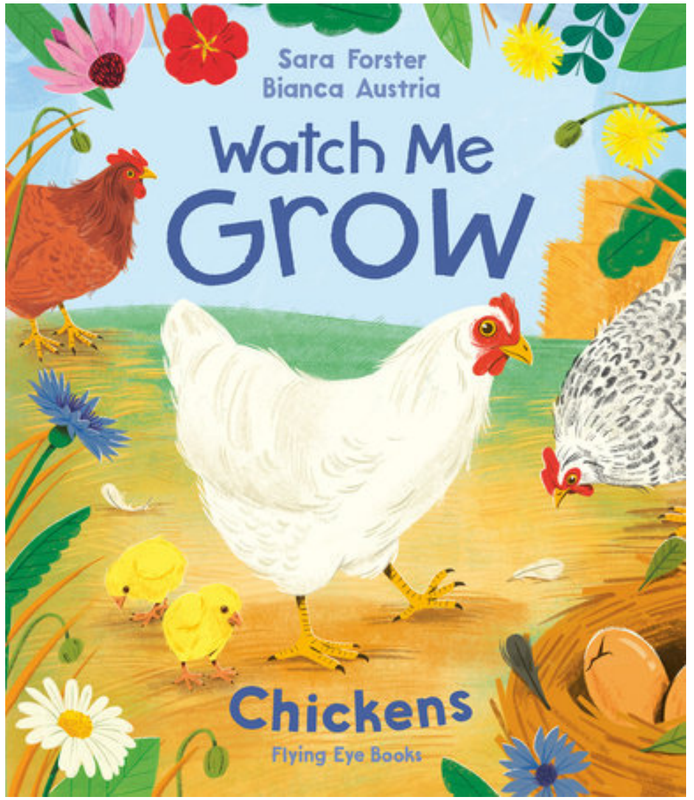
Chickens can see in full color and have excellent eyesight, even better than humans in some ways.

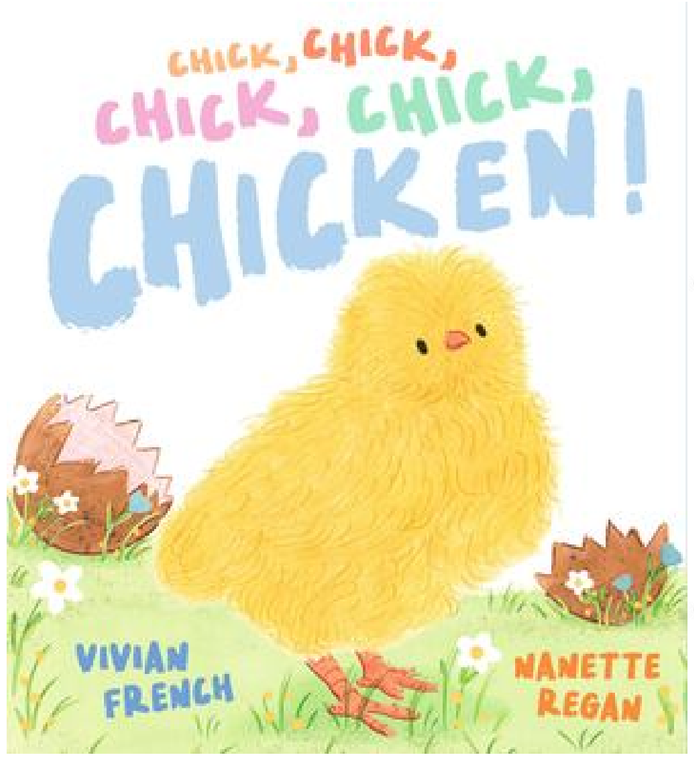
Chickens have a special way of dust bathing to keep their feathers clean and free of parasites.

A hen can lay over 250 eggs in a single year under the right conditions.

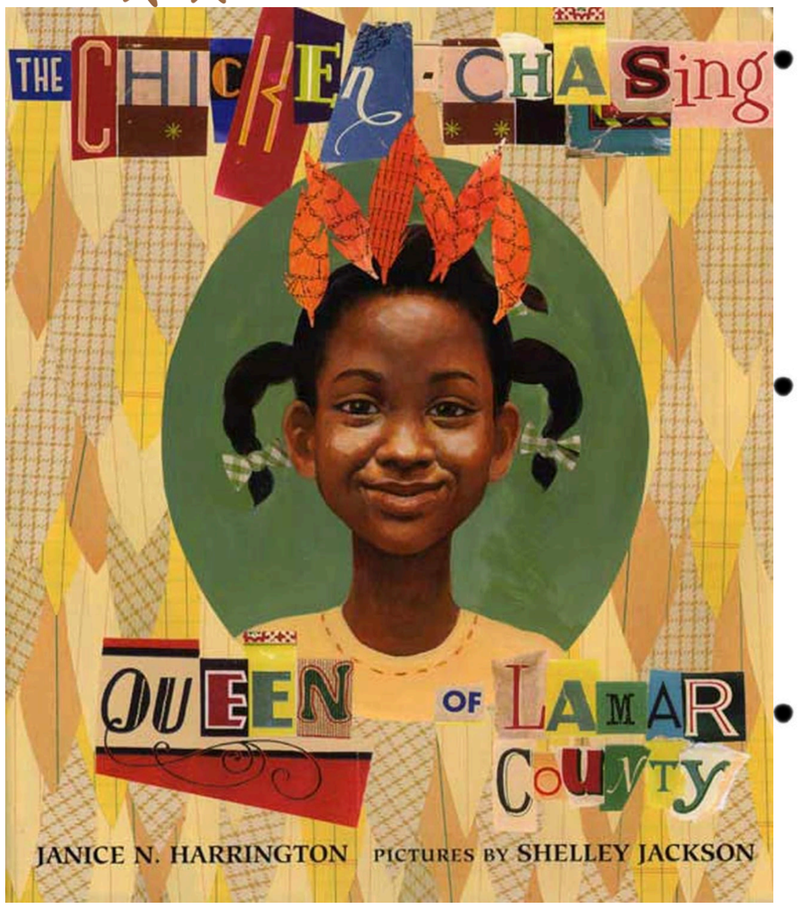
BOOKS!

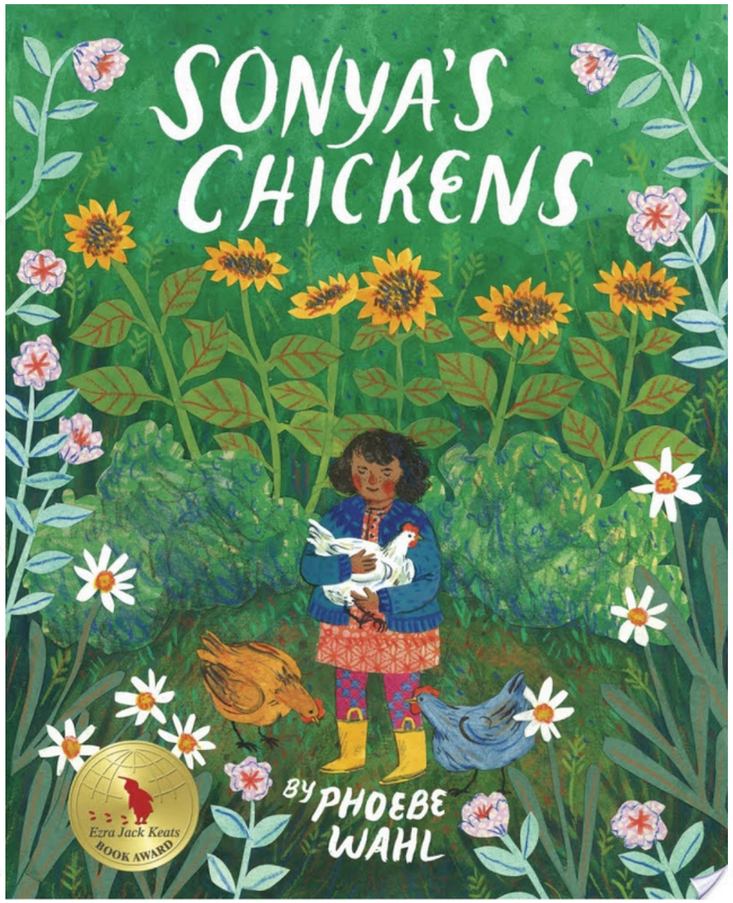

CHICKS & CHICKENS

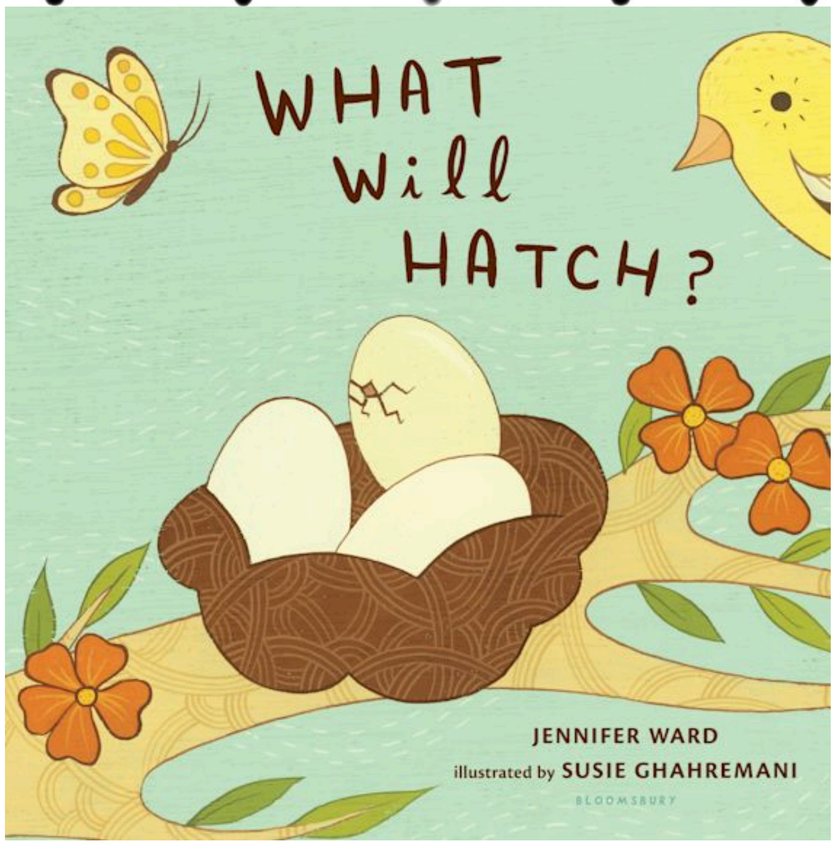

Sara Forster
Bianca Austria
Watch Me Grow
Chickens
Flying Eye Books

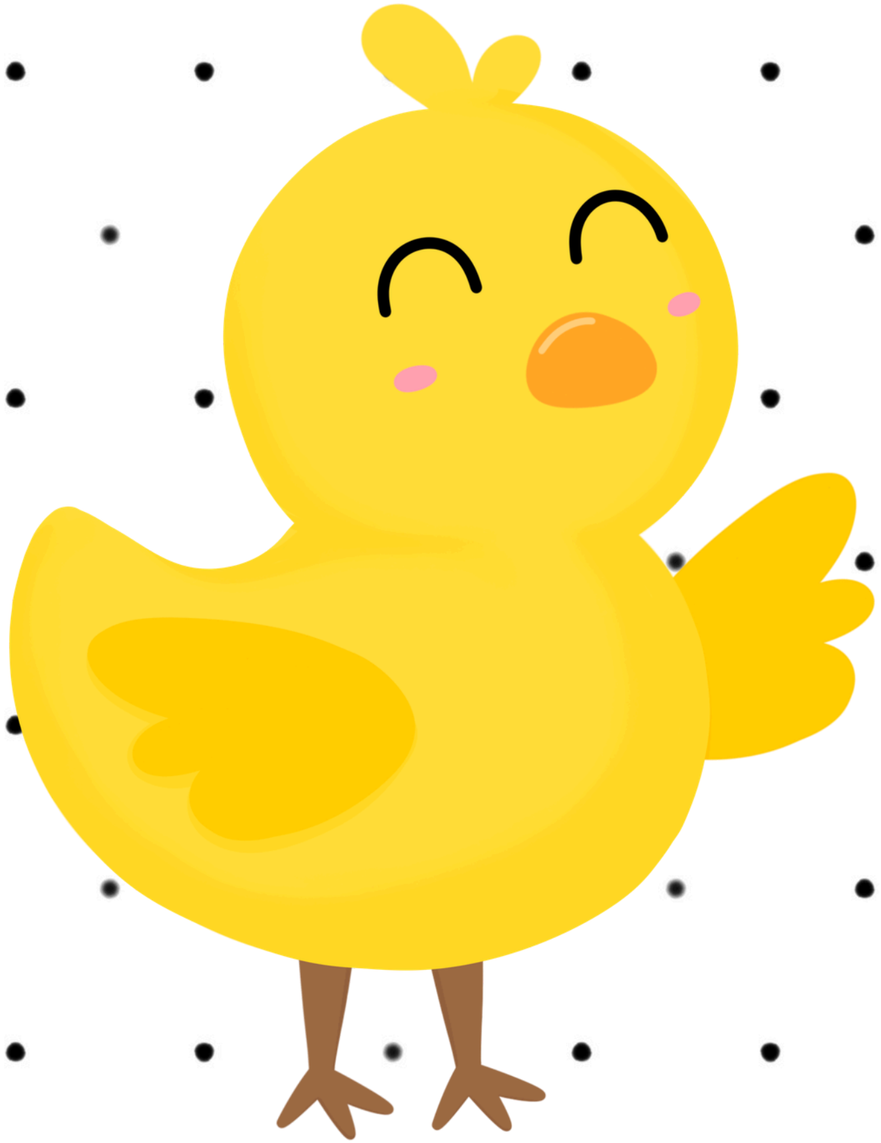

CHICK, CHICK, CHICK, CHICK, CHICKEN!
VIVIAN FRENCH
NANETTE REGAN

BOOKS!


THE CHICKEN-CHASING
QUEEN OF LAMAR COUNTY
JANICE N. HARRINGTON
PICTURES BY SHELLEY JACKSON


SONYA'S CHICKENS
Ezra Jack Keats
BOOK AWARD
BY PHOEBE WAHL

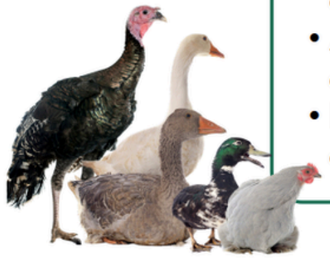

WHAT Will HATCH?
JENNIFER WARD
illustrated by SUSIE GHAHREMANI
BLOOMSBURY



OTHER READING RESOURCES

Facts for LITTLE READERS Poultry

- Poultry are birds like turkeys, chickens, geese, and ducks.
- A hen is a female chicken, duck, or turkey.
- Hens lay eggs.



- A male turkey is called a tom.
- A male chicken is called a rooster.
- Poultry produces eggs and meat.

Illinois AGRICULTURE in the Classroom

Poultry Patterns

Directions: On each blank line, write what comes next in the pattern.

Duck	Chick	Rooster	Hen	Turkey
				

CONTACT YOUR COUNTY COORDINATOR

https://iaitc.co/countycontact

SIGN UP FOR OUR MONTHLY NEWSLETTER

https://iaitc.co/fieldwork

THANK YOU!

PUMP UP PRIMARY

Annual Pre-K, Kindergarten,
1st, & 2nd Grade Conference

Thank you for attending my session. Please help us by scanning the QR Code to complete a session evaluation.

Save the date for next year: March 3-5, 2027