Egg-cellent Explorations:
A Teaching Kit All About BC Eggs

An Interdisciplinary Unit Plan for Grades 4-7 on the Egg Industry in British Columbia

Intermediate Kit Grades 4-7

BC Agriculture in the Classroom Foundation bcaitc.ca

BC egg Learning Eggventures

bcegg.com

All photos thanks to BC Egg.

Contents

Curriculum Connections

Curriculum Connections

English Language Arts 4-7

Curricular Competencies	Content Connections
Using oral, written, visual, and digital texts, students are expected individually and collaboratively to be able to: **Comprehend and Connect (reading, listening, viewing)** • Access and integrate information and ideas from a variety of sources and from prior knowledge to build understanding • Use a variety of comprehension strategies before, during, and after reading, listening, or viewing to deepen understanding of text • Consider different purposes, audiences, and perspectives in exploring texts • Apply a variety of thinking skills to gain meaning from texts • Identify how differences in context, perspectives, and voice influence meaning in texts **Create and communicate (writing, speaking, representing)** • Exchange ideas and perspectives to build shared understanding • Communicate in sentences and paragraphs, applying conventions of Canadian spelling, grammar, and punctuation • Develop and apply expanding word knowledge	**Grade 4 - 7 Strategies and processes** • reading strategies • oral language strategies • metacognitive strategies • writing processes ***Language features, structures, and conventions*** • paragraph structure • sentence structure and grammar conventions • language varieties (*Grade 7)

Curriculum Connections

Science 4-7

Curricular Competencies	Content Connections
Questioning and Predicting • Demonstrate curiosity about the natural world • Observe objects and events in familiar contexts • Identify questions about familiar objects and events that can be investigated scientifically • Make observations in familiar or unfamiliar contexts **Planning and Conducting** • Make observations about living and non-living things in the local environment • Observe, measure, and record data, using appropriate tools, including digital technologies **Processing and Analyzing Data & Information** • Experience and interpret the local environment • Demonstrate an openness to new ideas and consideration of alternatives	**Grade 4** • sensing and responding: humans, other animals, plants • biomes as large regions with similar environmental features **Grade 5** • basic structures and functions of body systems • sensing and responding: humans, other animals, plants • the nature of sustainable practices around BC's resources **Grade 6** • basic structures and functions of body systems **Grade 7** • organisms have evolved over time: change in traits of populations over time • survival needs: all organisms need space, food, water, and access to resources in order to survive

Curriculum Connections

Careers 4-7

Curricular Competencies	Content Connections
• Identify and appreciate their personal attributes, skills, interests, and accomplishments and their growth over time • Recognize the need for others who can support their learning and personal growth • Question self and others about the role of technology in the changing workplace • Appreciate the influence of peer relationships, family, and community on personal choices and goals	**Personal Development** • goal-setting strategies • self-assessment • leadership • problem-solving and decision-making strategies **Connections to Community** • local and global needs and opportunities • cultural and social awareness • global citizenship **Life and Career Plan** • factors affecting types of jobs in the community • technology in learning and working • role of mentors, family, community, school, and personal network in decision making

Curriculum Connections

Social Studies 4-7

Curricular Competencies	Content Connections
• Use Social Studies inquiry processes and skills to ask questions; gather, interpret, and analyze ideas; and communicate findings and decisions • Ask questions, corroborate inferences, and draw conclusions about the content and origins of different sources (evidence)	**Grade 4 - 5** • valuable natural resources have played a key role in changing the land, people, and communities of Canada **Grade 6 - 7** • economic policies and resource management • globalization and economic interdependence • scientific, philosophical, and technological developments

Applied Design, Skills and Technologies 6-7

Content Connections	
Food Studies • Basic food handling and simple preparation techniques and equipment • Factors in ingredient use, including balanced eating/nutrition, function, and dietary restrictions	

Teacher Background

Eggs are produced by hens (female chickens) and, in British Columbia, they are all laid on family run farms. Hens begin laying eggs when they are 19 weeks old and a laying hen will produce approximately 320-340 eggs per year—almost 1 per day. Chickens are domestic fowl, as are turkeys, ducks and geese. All species of poultry lay eggs. In Canada the average person consumes 257 chicken eggs per year!

BC HAS MORE **CAGE-FREE** HENS THAN ANY OTHER PROVINCE.

ONE LARGE EGG CONTAINS 6.5 GRAMS OF PROTEIN AND ALL NINE ESSENTIAL AMINO ACIDS.

THERE ARE **154** EGG FARMS IN BC.

IN 2023, BC EGG FARMS PRODUCED **84.6 MILLION** DOZEN EGGS.

ALL BC EGG FARMS ARE FAMILY OWNED.

BC egg **DONATES EGGS** AND FUNDING TO A NUMBER OF ORGANIZATIONS PROMOTING NUTRITION, AGRI-EDUCATION, AND FOOD SECURITY, INCLUDING FOOD BANKS BC, EASTER SEALS, BC AGRICULTURE IN THE CLASSROOM, AND MORE.

NUTRITIONALLY, WHITE AND BROWN EGGS ARE **THE SAME.** WHITE HENS LAY WHITE EGGS AND BROWN HENS LAY BROWN EGGS.

Eggs come in various shell colours but the most common colours you'll see in the grocery store are white and brown. There is no nutritional difference between white and brown eggs. The shell colour depends on the colour of the chicken's earlobe. The hen's feathers may be a different colour than her skin as well. So, eggs can be white, tan, pale pink or even a light shade of green – it simply depends on the breed.

Chickens can be raised on a large or small scale. In BC, a few chickens can be raised in a backyard to provide eggs as a backyard flock producer, or farmers with 100-399 chickens are called Small Lot Producers. When farms have more than 399 hens, they can apply to become a registered producer. Eggs that are sold at grocery stores or used in restaurants are all farmed by registered producers. Eggs are collected daily and refrigerated on farm before being graded.

Hen Housing Systems

On registered farms, hens live in 5 different types of housing systems in British Columbia: conventional, enriched, organic, free run and free range. These terms also apply to the types of eggs each hen produces, so they will also be seen on egg cartons. There are specific standards for each housing type, managed by BC Egg, Egg Farmers of Canada, and the Canadian General Standards Board. Farmers want to keep their hens happy and healthy and exhibiting natural behaviours. These natural behaviours include perching, dustbathing, and scratching.

Hens are fed a healthy diet of corn, wheat, soy (for protein), healthy fats, limestone for calcium and vitamins and minerals. Their feed is formulated with help from poultry nutritionists and is tailored to the age of the hens and the season.

Eggs that are produced for the purpose of eating will never develop into a chick because there are only hens in the barns. Without a rooster, no fertilization takes place.

After the eggs are collected, they then go to the grading station where they are washed, checked for cracks and abnormalities, sorted according to weight and then packaged. The contents of an egg can be seen by a method called candling (holding it up to a light). If an egg has an abnormal shape or appearance, it is sent to the breaking plant and the remaining eggs are packaged into cartons. Eggs sent to the breaking plant are turned into frozen, liquid or dried egg products. Packaged eggs leave the grading stations in refrigerated trucks which deliver them to retail grocery stores where they are sold to consumers.

Depending on the weight of the egg, it will automatically be packaged as either peewee, small, medium, large, extra-large or jumbo. Egg size depends on the age of the hen; when a hen is young there will be variety in the size of her eggs. As her body becomes used to laying, her egg size will become more uniform. She will then settle into a regular production size (medium, large or extra-large), depending on how much protein she eats.

Eggs are an important part of our diet because they are a great source of protein. One large 80 calorie egg contains 6.5 grams of high-quality protein and 14 key nutrients that help maintain healthy bones, teeth, skin and eyes. All eggs, white or brown, raised in any of the five different housing systems have the same nutritional value! Eating 20-40 grams of protein per day from foods like eggs, promotes muscle recovery following exercise and helps preserve muscle during aging. Egg yolks contain lutein and zeaxanthin, carotenoids that can support eye health as you age. Research shows that dietary cholesterol (say from eggs) does not negatively impact blood cholesterol and may even increase good cholesterol.

Nutrition Facts
Valeur nutritive

Per 2 large eggs (105 g)
pour 2 gros oeufs (105 g)

Calories 160 kcal	**% Daily Value*** **% valeur quotidienne***
Total Fat / Lipides 11 g	15 %
Saturated / saturés 3.5 g + Trans / trans 0 g	18 %
Polyunsaturated / polyinsaturés 2 g	
Omega-6 / omega-6 1.5 g	
Omega-3 / omega-3 0.2 g	
Monounsaturated / monoinsaturés 5 g	
Total Carbohydrate / Glucides 1 g	
Dietary Fibre / Fibres alimentaires 0 g	0 %
Sugars / Sucres 0 g	0 %
Protein / Protéines 13 g	
Cholesterol / Cholestérol 400 mg	
Sodium 130 mg	6 %
Potassium 125 mg	4 %
Calcium 50 mg	4 %
Iron / Fer 1.75 mg	10 %
Vitamin A / Vitamine A 200 ug	22 %
Vitamin C / Vitamine C 0 mg	0 %
Vitamin D / Vitamine D 1.5 ug	8 %
Vitamin E / Vitamine E 4 mg	27 %
Thiamine 0.1 mg	8 %
Riboflavin / Riboflavine 0.5 mg	38 %
Niacin / Niacine 0.1 mg	1 %
Folate 70 ug	18 %
Vitamin B_6 / Vitamine B_6 0.075 mg	4 %
Vitamin B_{12} / Vitamine B_{12} 1.55 ug	65 %
Biotin / Biotine 40 ug	133 %
Pantothenate / Panthothénate 2.2 mg	44 %
Choline 410 mg	75 %
Phosphorous / Phospore 150 mg	12 %
Iodide / Iodure 45 ug	30 %
Magnesium / Magnésium 10 mg	2 %
Zinc 1.25 mg	11 %
Selenuim / Sélénium 31 ug	56 %
Copper / Cuivre 0.08 mg	9 %
Manganese / Manganèse 0.02 mg	1 %

* 5% or less is **a little**, 15% or more is **a lot**
* 5% ou moins c'est **peu**, 15% ou plus c'est **beaucoup**

Activities List

Activity One: Egg-cellent Insights: The Lifecycle of Hens

Activity Two: Life in the Coop: A Deep Dive into Hen Wellness

Activity Three: Making the Grade: All About Different Types of Eggs

Activity Four: Sunny Side Up: The Nutritional Power of the Egg

Activity Five: Farm Fresh: The Path of the Egg from Farm to Fork

Activity Six: Green Eggs (and Ham): Eco- Friendly Practices on BC Egg Farms

Activity One

Egg-cellent Insights: The Lifecycle of Hens

TEACHER BACKGROUND

BC Egg farmers prioritize the health of their hens! Our farmers are egg-sperts at raising chickens. They provide specialized care for their birds at each stage of their life – from chick, to pullet, to laying hen. This lesson delves into the life cycle of a laying hen, illustrating how BC Egg farmers attend to the needs of the hens throughout their entire life cycle.

MATERIALS

- *Lifecycle of a Laying Hen* Poster
- Student Handouts
- *Chicken Vocabulary Unscramble*
- Jigsaw Activity
- Student Handouts:
  - *Lifecycle of a Chicken READ*
  - *Lifecycle of a Chicken WORKSHEET*
- *True/False* Cards
- *Time to Wrap It Up: Chicken Lifecycle Closing Questions*

- Divide students into small groups and hand out/display at the front, *Chicken Vocabulary Unscramble*. Allow them time to attempt unscrambling the words.
- Review the answers together and check how many students answered correctly.
- Utilize the *Lifecycle of a Laying Hen* Poster to emphasize the terms and provide explanations to the students.
- Encourage each student to select one term and share its definition with a partner.

BODY

- Let students know that they are going to do a Jigsaw Activity.
- Divide the class into groups of 3 and assign each group a part of the life cycle (Stage 1, Stage 2 or Stage 3) to investigate. These will be their "home group." Using the *Chicken Life Cycle READ Handout* for information, have students research and complete the corresponding *Chicken Life Cycle WORKSHEET* for their assigned section. Tell them to ensure they know their assigned section well, as they will be responsible for teaching that section to their fellow classmates.

CONTINUED

Activity One

Egg-cellent Insights: The Lifecycle of Hens

- Reorganize groups of students into "expert groups" so that each new group has one person from each of the 3 previously assigned groups.
- In the experts' groups, have students take turns explaining and teaching their fellow classmates about the life cycle stage assigned to them. (Allow each student 2-3 minutes to explain their stage to other members of this expert group.)
- Students then move back to their home groups, sharing the information they gathered from their peers. In their home group each student should ensure they have gathered all the information and have completed each *Chicken Life Cycle WORKSHEET*.

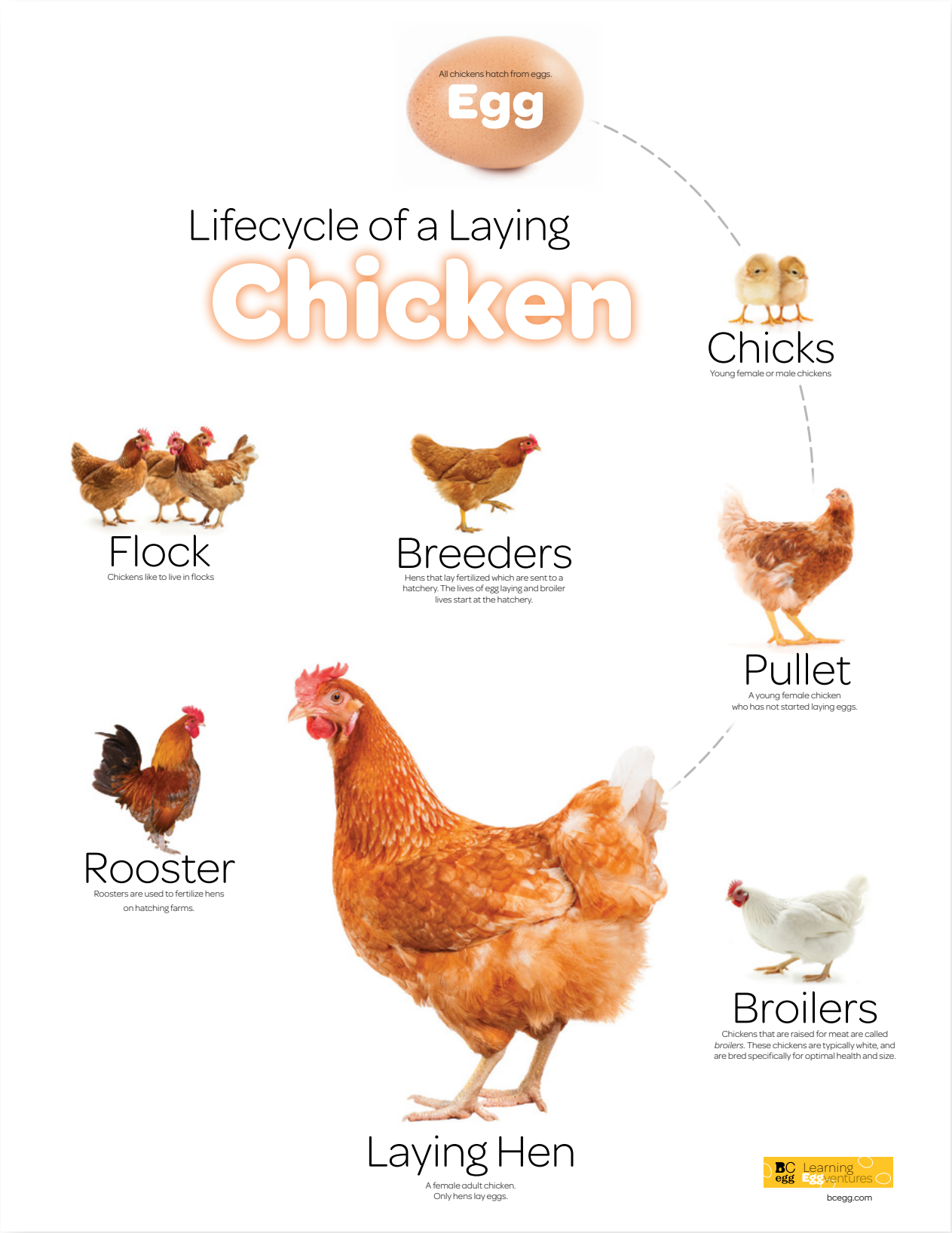
CLOSING

- Break students into pairs or groups of three. Give them a set of true/false cards.
- Ask the questions from the *Time to Wrap It Up: Closing Questions*, one at a time, and have the groups decide what side of their card to hold up.
- Award a small prize to the winning team(s) if desired.

EXTENSIONS

- Tour of a BC Egg Farm: https://www.bcaitc.ca/resources/spotlight-eggs-bc-egg-farm-tour
- Intermediate Egg Fresh Story: https://www.bcaitc.ca/resources/fresh-story-eggs-intermediate
- Canadian Pullet Farm video: https://canadianfoodfocus.org/on-the-farm/what-is-a-pullet-farm/

CHICKEN LIFECYCLE POSTER



Chicken Vocabulary Unscramble

1. REEBDSER _____
2. SNHE _____
3. SKCCHI _____
4. SRROOSTE _____
5. YEARSL _____
6. RSBRIOLE _____
7. KOCFL _____
8. LLUPTES _____
9. HCCIENKS _____

ANSWERS:

1. Breeders, 2. Hens, 3. Chicks 4. Roosters, 5. Layers, 6. Broilers, 7. Flock, 8. Pullets, 9. Chickens

Stage 1

Breeder Farms, Hatchery and Pullet Farms

READ

In BC there are more than 155 egg farms and each and every one is family owned and operated. Our farmers raise almost 4.7 million hens province wide and produce over 110 million dozen eggs a year. Each large BC egg has 80 calories, 6.5 grams of protein, and 9 essential amino acids and 14 other essential nutrients to live a healthy lifestyle.

The life cycle of an egg laying hen begins on an egg laying breeder farm. The hens that live at these farms are selected because of their good egg production traits. These hens are kept with roosters to fertilize the eggs. The eggs are taken from the farm to a hatchery. At the hatchery, the eggs are kept warm in an incubator for 18 days. An incubator is a closed container that keeps eggs warm and at the right humidity and temperature so they can hatch into chicks. After 18 days, the eggs are removed from the incubator, and placed in a hatchery where they are kept comfortable for 3 more days. After that, they hatch into chicks. At one day old the chicks are then transported to a pullet farm. Chicks are called pullets when they are fully feathered, typically around 2-3 weeks old. Pullets are young hens that have not yet matured enough to start laying eggs. Once the hens are ready to lay eggs, they are taken to a layer farm that is specially designed for their comfort and needs.

Stage 1

Breeder Farms, Hatchery and Pullet Farms

WORKSHEET

In BC there are more than _____ egg farms and each and every one is family owned and operated. Our farmers raise almost 4.7 million hens province wide and produce over 110 million dozen eggs a year. Each large BC egg has 80 calories, 6.5 grams of protein, and 9 essential amino acids and ___ other essential nutrients to live a healthy lifestyle.

The life cycle of an egg laying hen begins on an egg laying breeder farm. The hens that live at these farms are selected because of their good egg production traits. These hens are kept with roosters to fertilize the eggs. The eggs are taken from the farm to a _____. At the hatchery, the eggs are kept warm in an incubator for _____ days. An incubator is a closed container that keeps eggs warm and at the right humidity and temperature so they can hatch into chicks. After _____ days, the eggs are removed from the incubator, and placed in a hatchery where they are kept comfortable for 3 more days. After that, they hatch into chicks. At one day old the chicks are then transported to a pullet farm. Chicks are called pullets when they are fully feathered, typically around _____ weeks old. Pullets are young hens that have not yet matured enough to start laying eggs. Once the hens are ready to lay eggs, they are taken to a layer farm that is specially designed for their comfort and needs.

Stage 1

Breeder Farms, Hatchery and Pullet Farms

KEY

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Stage 2

Pullets to Laying Hens

READ

In BC there are over 155 egg farms and each and every one is family owned and operated. Our farmers raise almost 4.7 million hens province wide and produce over 110 million dozen eggs a year. Each large BC egg has 80 calories, 6.5 grams of protein, and 9 essential amino acids and 14 other essential nutrients to live a healthy lifestyle.

Some egg farmers raise their own pullets and other pullets are raised on special pullet farms. In the pullet barn, the pullets receive attentive care. They are provided with specialized pullet feed for growing birds, to promote their health. Their diet includes corn and soybeans or meat meal for energy and protein, contributing to a strong body frame and good health. As they progress through their time at the farm, they receive increased calcium, which their bodies can store in their bones, aiding in egg production. Within the pullet barn, the pullets live in the same environment they will live in as hens and engage in natural behaviors, such as perching, while enjoying unrestricted access to feed and fresh water. By around 19 weeks, the pullets reach maturity to begin laying eggs, transitioning into "hens." They will then be relocated to their permanent homes in layer barns, equipped with amenities to help them live happy, healthy lives.

Stage 2

Pullets to Laying Hens

WORKSHEET

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Pullets to Laying Hens

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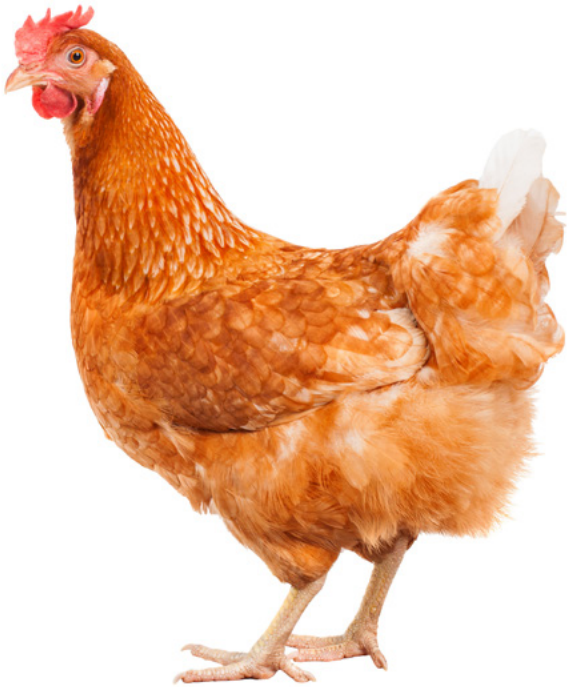
Stage 3

Egg Layers to Spent Hens



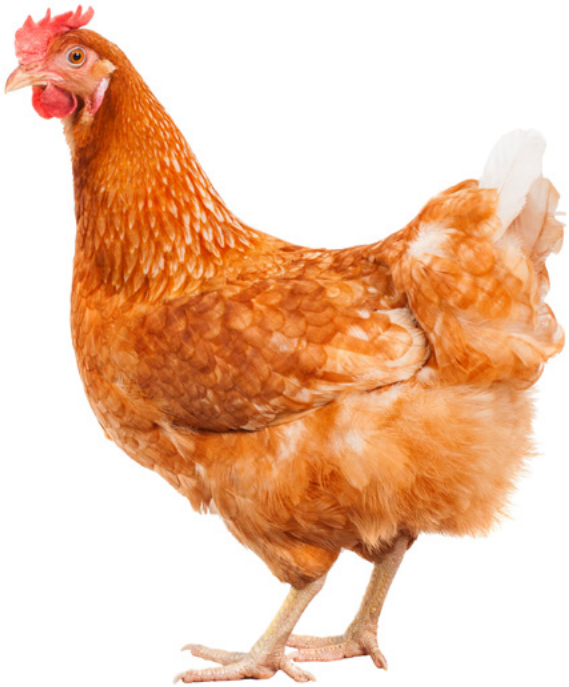
READ

In BC there are over 155 egg farms and each and every one is family owned and operated. Our farmers raise almost 4.7 million hens province wide and produce over 110 million dozen eggs a year. Once BC Eggs reach your table, you know you're fueling your body with 80 calories, 6.5 grams of protein, and 9 essential amino acids and 14 other essential nutrients to live a healthy lifestyle.

Once the laying hens arrive at the laying farm, they typically need some time to learn where their nest boxes are located, as they do not need them as pullets. Farmers often discover eggs on the barn floor until the hens become accustomed to the new nesting environment. For free-range and organic farmers, new hens are usually kept indoors for several weeks to help them adjust to their new barn and laying routine before being allowed outside. Hens usually reach their peak laying capacity around 26 weeks of age, producing nearly an egg a day until their laying begins to decline at about 64 weeks. By the time hens reach approximately 72 weeks, they complete their laying cycle. Specialized crews are then brought to the farm to catch the hens, which are sent to processing plants and humanely euthanized. At these facilities, every part of the hen is utilized in food products such as chicken noodle soup, pet food, and bone or blood meal for garden fertilizers. This ensures that nothing from the hen goes to waste, including the manure from the barns, which is repurposed as fertilizer for crops and produce. Once all the birds have left, the barn will be cleaned and disinfected before a new flock arrives and the cycle repeats.

Stage 3

Egg Layers to Spent Hens



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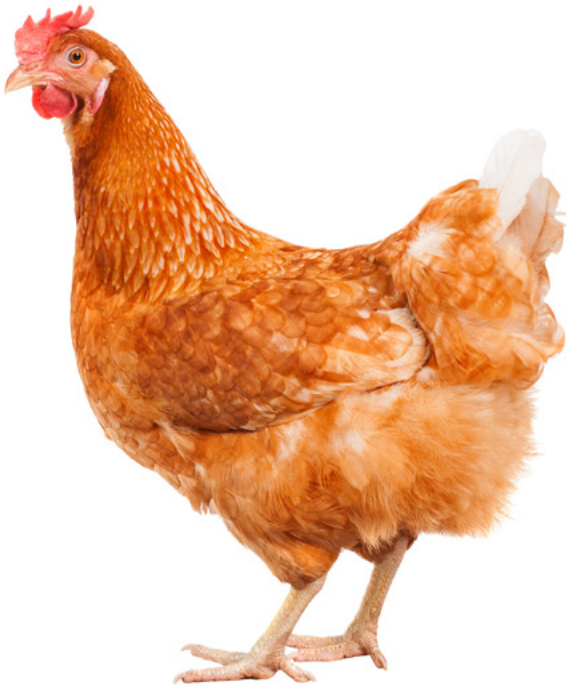

KEY

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Cut on the dotted lines. Fold and tape the ends to make double sided TRUE/FALSE cards for groups.

Tape here

TRUE	FALSE
TRUE	FALSE
TRUE	FALSE
TRUE	FALSE

Cut on dotted lines

Time to Wrap It Up:
Chicken Lifecycle Closing Questions

TRUE OR FALSE QUESTIONS

1. The average laying hen in BC lays 125 eggs per year. (T) or (F)

2. An incubator is used to carefully control temperature, humidity and air flow to create an ideal environment for hatching eggs.. (T) or (F)

3. A chick becomes a pullet, when fully feathered at 5-6 weeks old. (T) or (F)

4. Hens reach their peak laying potential at about 44 weeks old. (T) or (F)

5. Hens start to slow down their egg laying at about 64 weeks. (T) or (F)

ANSWERS

1. FALSE- 340 eggs per year, 2. TRUE, 3. FALSE 2-3 weeks, 4. FALSE 26 weeks old, 5. TRUE

Activity Two

Life in the Coop: A Dive into Hen Wellness

TEACHER BACKGROUND

BC Egg Farmers take great pride in not only meeting but surpassing the established animal care standards. They ensure the well-being of their hens by effectively managing various factors both inside and outside their barns. This lesson will explore the practices BC Egg farmers implement in the coop to guarantee the happiness and health of their hens.

MATERIALS

- *What Hen's Eat Terms* page
- Tape
- Scissors
- Computer with access to the Internet
- Projector
- Student Handout:
  - *Happy, Healthy Hens Mind Map*

INTRODUCTION

- Print out the *What Hen's Eat Terms* page, cut out the terms, and tape them in various locations around the classroom. Divide the class into 8 groups and have them search for one paper each. Explain to the students that these papers contain items that hens consume.
- After all the groups have located their papers and read the contents, gather them back to the larger group and have them read their paper out loud to the entire class.
- Inform the students that a significant aspect of keeping hens happy and healthy is their diet. There are poultry nutritionists who collaborate with BC Egg farmers to ensure that hens receive the precise rations needed to produce quality eggs for families in BC.

CONTINUED

Activity Two

Life in the Coop: A Dive into Hen Wellness

BODY

- To ensure their hens remain healthy, BC farmers provide a balanced diet and allow them to exhibit natural behaviors. These behaviors include perching, scratching, dust bathing, and nesting.
- Write **Perching**, **Scratching**, and **Nesting** on the board.
- Show the video titled Enriched Egg Barn Tour. While watching, encourage students to look for these behaviors. When they spot one, pause the video and circle the corresponding word on the board.
- Discuss with students how hens display natural behaviours, and how farmers support these actions in the barn. Happier hens result in more egg production! As consumers, it's reassuring to know that farmers prioritize the well-being of their hens.
- Ask the class if anyone knows what biosecurity means.
- Explain that biosecurity involves protecting hens from diseases, which is crucial for farmers who want to keep their animals healthy.
- Watch Free Run Barn Tour and listen to Farmer George discuss biosecurity. Encourage students to observe signs of biosecurity and the shoe-switching process in the video. Emphasize that farmers prefer people not to enter their barns and properties to keep hens safe and healthy.
- Ask: What happens to the manure in the videos?
  - Both barn systems shown have slats designed for chicken feet and belts underneath to keep manure away from the chickens and their eggs! Maintaining cleanliness in the barns is essential for the health and happiness of the hens.
- Have students utilize the information from the videos and discussions to complete the *Happy Healthy Hens Mind Map*.
- After finishing, ask the students to share their Mind Maps with a partner.

CLOSING

- Schedule a Virtual Egg Barn Tour with BC Egg. These tours are designed specifically for your class and include a Q&A session at the end.
- Encourage students to brainstorm questions they would like to ask the farmers.
- This can help them reflect on previous discussions about how farmers ensure their hens remain happy and healthy.

NOTES

- Enriched Egg Barn Video: perching (0:28, 2:45), scratching (0:20-0:22, 2:45), nesting (0:35-0:37, 2:55)

LINKS

- Enriched Egg Barn Tour: https://www.youtube.com/watch?v=KfFSHKktaro&t=1s
- Free Run Barn Tour: https://www.youtube.com/watch?v=g1UuBNTLIqo&t=1s
- Virtual Barn Tour: https://bcegg.com/on-the-farm/virtual-barn-tours/

Cut out each term, and place around the classroom for students to find.

CORN

WHEAT

SOY or MEAT MEAL (for Protein)

HEALTHY FATS

LIMESTONE for CALCIUM

VITAMINS and MINERALS

NO HORMONES

NO STERIODS

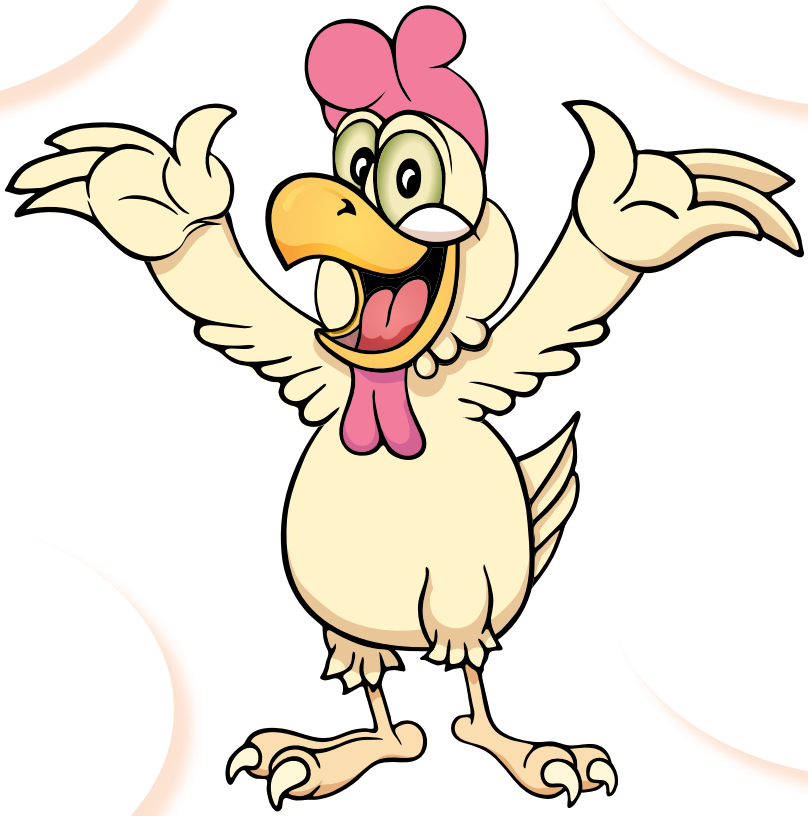
Cut on dotted lines

Happy Healthy Hens Mindmap

INSTRUCTIONS

BC Egg Farmers dedicate a lot of effort to ensure their hens are happy and healthy. Utilize the bubbles below to list the methods they use to achieve this.

Include examples to elaborate on the ideas you learned from the videos and discussions.



Activity Three

Making the Grade: All About Different Types of Eggs

TEACHER BACKGROUND

Less than 20 years ago, shoppers at local grocery stores had a straightforward choice when it came to eggs: white or brown, and sized small, medium, or large. However, today's consumers are presented with a far more intricate selection of options. The positive aspect is that all eggs produced in British Columbia meet the highest standards of cleanliness, quality, and freshness. Through this lesson, we aim to clarify the various names and classifications, empowering consumers to make purchases that reflect their budget and values.

MATERIALS

- Computer with projector
- 3-5 Egg cartons from different types of eggs (i.e. Classic, Free Run, Organic, Enriched Housing)
- Two eggs from different types of farms
- Two paper plates
- Student Handouts:
  - *Egg Labeling 101 Reading Activity*
  - *Brand Your Own Egg Carton Activity*
- Colouring supplies
- Optional: empty egg cartons and blank paper

Did you know that sometimes hens lay eggs that have two yolks? Double yolkers are typically laid by young hens whose egg production cycles are stabilizing.

INTRODUCTION

- Select two distinct types of eggs (for example, Enriched Housing and Organic, or Free Range and Free Run). Label the bottoms of the plates with the type of egg, then crack the eggs onto the plates.
- Position the plates at the front of the classroom.
- Explain to the students that BC Egg farmers raise their happy, healthy hens in various types of barns. There are five different types of eggs produced on BC farms, and consumers can identify them by reading the egg carton.
- The carton provides information about the type of barn where the hens are raised. All eggs contain the same nutritional values, along with essential vitamins and minerals.
- Draw the students' attention to the eggs on the paper plates and ask them to observe any differences between the two eggs.
- Encourage them to guess the type of barn each egg was raised in.
- Reveal to the students which type of barn produced each egg.
- Inform them that the nutritional value of the eggs remains consistent regardless of where they were raised; each egg contains 80 calories, 6.5 grams of protein, and 9 essential amino acids.

CONTINUED

Activity Three

Making the Grade: All About Different Types of Eggs continued

BODY

- Distribute the *Egg Labeling 101 Reading Activity* Handout.
- Break students into partners and have them log onto Egg Labeling 101. Have them use the worksheet to guide their reading. There are blanks to fill in as they read to guide their learning and understanding.
- When they have completed, go over answers together.

CLOSING

- Present 3-5 different egg cartons and guide students to notice the Best Before Date on the side, as well as the Canada Grade A symbol. Discuss the "Product of" label to explain where the eggs originated.
- Highlight any additional images and mention where the carton specifies the type of housing in which the eggs were produced.
- Inform students that they will be designing their own egg carton branding for an imaginary farm. Distribute *Brand Your Own Egg Carton Activity* Handout and have them fill out their responses before they start designing their own egg cartons branding!
    - Students can either complete their branding designs on the provided blank egg carton image or use recycled egg cartons wrapped in plain paper for a 3D model.

LINKS

- Egg Labeling 101: https://bcegg.com/eggs-101/egg-labels-101/

Egg Labelling 101

Go to https://bcegg.com/eggs-101/egg-labels-101 or use the QR Code and read through the information to answer the questions.

1. BC-produced eggs meet the highest standards for _____, _____, and _____.

2. In Canada, there are five types of eggs that correspond to the five housing types for hens:

3. There are _____ nutritional differences between these eggs, the distinctions are solely in how the hens are housed.

4. _____ and animal welfare specialists were consulted when developing this new standard of enriched housing.

5. _____ are produced in an environment where the hens have the run of the barn.

6. _____ come from barns that are similar to free run barns but also give hens access to the outdoors.

7. There are standards in place to ensure free-range hens have access to the outdoors at least _____ days a year.

8. _____ are produced in barns that are similar to free-range barns. They are only fed certified _____ _____ and are never given antibiotics.

CONTINUED

Egg Labelling 101 continued

The questions continue starting with number 9 below:

9. There are a few types of eggs that have additional nutritional properties derived from a specialized diet given to the hens.

10. Egg size is determined by weight in grams. List the weights the column beside the name .

Egg Size	Weight
Peewee eggs	
Small eggs	
Medium eggs	
Large eggs	
Extra-Large eggs	
Jumbo eggs	

11. For an egg to be "Grade A" , there are many things that are measured. List two of these below:

12. _____, is a national certification program that adds a new mark to egg cartons to show the eggs were produced in Canada with high standards of animal welfare and food safety.

13. When eggs don't meet the Grade A quality, they are sent to a processing plant to be turned into a variety of other egg products. List two examples:

Egg Labelling 101

Go to https://bcegg.com/eggs-101/egg-labels-101 or use the QR Code and read through the information to answer the questions.

1. BC-produced eggs meet the highest standards for cleanliness, quality, and freshness .

2. In Canada, there are five types of eggs that correspond to the five housing types for hens:

Conventional caged
Enriched
Free run
Free range
organic

3. There are no nutritional differences between these eggs, the distinctions are solely in how the hens are housed.

4. Veterinarians and animal welfare specialists were consulted when developing this new standard of enriched housing.

5. Free-run eggs are produced in an environment where the hens have the run of the barn.

6. Free-range eggs come from barns that are similar to free run barns but also give hens access to the outdoors.

7. There are standards in place to ensure free-range hens have access to the outdoors at least 120 days a year.

8. Organic eggs are produced in barns that are similar to free-range barns. They are only fed certified organic feed and are never given antibiotics.

CONTINUED

Egg Labelling 101 continued

The questions continue starting with number 9 below:

9. There are a few types of eggs that have additional nutritional properties derived from a specialized diet given to the hens.

Omega-3 or Omega Pro eggs
Vitamin- Enhanced eggs

10. Egg size is determined by weight in grams. List the weights the column beside the name .

Egg Size	Weight
Peewee eggs	Less than 42 grams
Small eggs	42-49 grams
Medium eggs	49-56 grams
Large eggs	56-63 grams
Extra-Large eggs	63-69 grams
Jumbo eggs	70 grams or more

11. For an egg to be "Grade A" , there are many things that are measured. List two of these below:

Quality of the shell, consistency of the egg white, the size of the air cell in the egg, overall cleanliness of the eggs, shape and placement of the yolk

12. EQA™, the Egg Quality Assurance™ program, is a national certification program that adds a new mark to egg cartons to show the eggs were produced in Canada with high standards of animal welfare and food safety.

13. When eggs don't meet the Grade A quality, they are sent to a processing plant to be turned into a variety of other egg products. List two examples:

Liquid eggs, pasteurized eggs, packaged egg whites, ready to eat hard cooked eggs, powdered eggs, pre-cracked eggs for restaurants and bakeries.

Brand Your Own Egg Carton

Respond to the questions about your fictional farm and use the insights to design your farm's egg carton! Remember, your egg carton conveys important information to consumers about your eggs. It's crucial for them to understand how long the eggs remain fresh, where they are produced, and the type of barn where the hens that laid them live.

My Imaginary Farm Brainstorming

Where my farm is located:

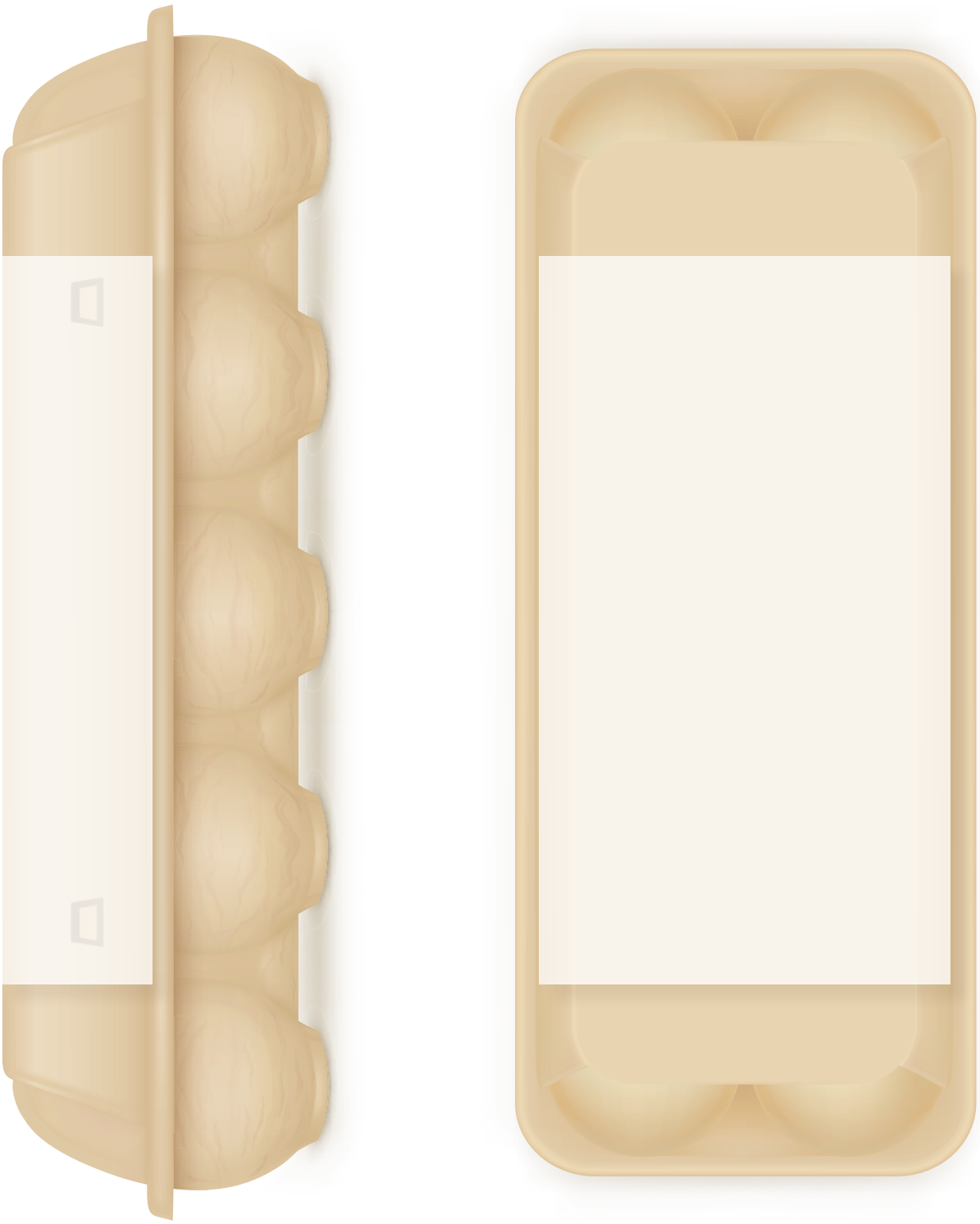
Type of Barn my chickens live in:

Any features or landmarks on my farm:

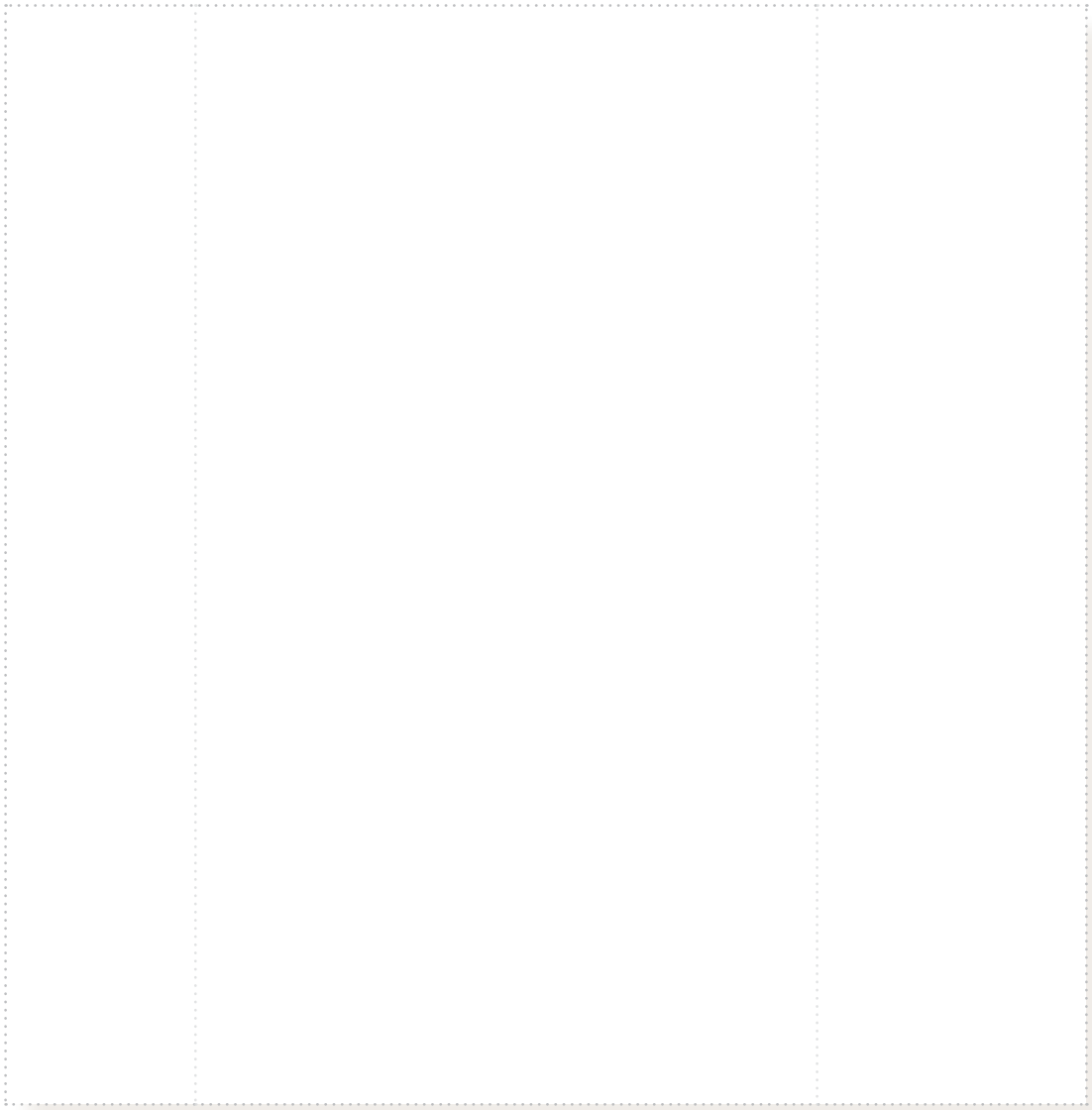
The name of my farm:

My Farm's Egg Carton

Name: .....



Use the outline below to render your egg carton label at full size.



Activity Four

Sunny Side Up: The Nutritional Power of the Egg

TEACHER BACKGROUND

Eggs are a true nutritional powerhouse. A single large egg packs in 6.5 grams of protein, all nine essential amino acids, and 14 vital nutrients that support the health of bones, teeth, skin, eyes and more—all for just 80 calories! In this lesson students will learn about how these contribute to a healthy body and how eggs are a vital source of protein. Students will then cook or watch a cooking demonstration of a recipe using BC eggs as a culminating activity.

MATERIALS

- Student Handouts:
  - *Key Nutrients of Eggs Wordsearch*
  - *What's on Your Plate?* Handout
- Drawing materials/grocery flyers/magazines
- Muffin Tin Frittata ingredients
  - 4 eggs
  - ½ cup milk (dairy or non-dairy)
  - Salt and pepper
  - Cheese (dairy or non-dairy)
  - 2 green onions
  - salsa
- Muffin Tin
- Oven

INTRODUCTION

- Remind students that they learned about how all eggs have the same nutritional value.
- Distribute *Key Nutrients of Eggs Wordsearch* to students, or pairs of students.
- Once they have been given time to complete have different students read the terms one at a time, and tell them what this does for their body using the terms listed at Egg Nutrition 101.

CONTINUED

Activity Four

Sunny Side Up:
The Nutritional Power of the Egg continued

BODY

- Show students Canada's Food Guide
- Review the different sections of the plate.
- Ask: Can you spot the egg?
  - Share that it is in the protein section.
- Ask students to share ways that they like to eat eggs. List the ways on the board.
- Give students a blank *What's on Your Plate?* Handout
- Have students design a plate featuring eggs. Students can draw their own pictures, write, or use grocery flyers/magazines to cut out pictures to complete their plates.

CLOSING

- Show students the Muffin Tin Frittata Recipe.
- If space and equipment allow, break students into small groups so they can cook the recipe, and if you only have access to one oven, then do it demonstration style.
- Follow the directions on the recipe.
- Once Frittatas are cooked and cooled, let students sample them.
- Have students share why they liked them and encourage them to cook and share them at home.

LINKS

- Why are Eggs good for us? Handout: https://bcegg.com/get_egg-ucated/
- Egg Nutrition 101: https://bcegg.com/egg-nutrition-101/
- Canada's Food Guide: https://food-guide.canada.ca/en/food-guide-snapshot/
- Muffin Tin Frittata Recipe: https://bcegg.com/wp-content/uploads/2020/11/Kids-Recipes-Muffin-Tin-Frittata-2-Page-For-WEB.pdf

Key Nutrients of Eggs Wordseach

Look for the following words in the wordsearch.

Vitamin B12	Lutein	Iron	Phosphorus	Riboflavin
Choline	Zeaxanthin	Folate	Vitamin A	Iodide
	Selenium	Vitamin D	Vitamin E	

Go to Egg Nutrition 101 to see what all these nutrients do for your body!

e l v z c k s m j k j l b s r

k u t v d r m h q c c a u d a

r t p h o s p h o r u s t k b

i e n r v i t a m i n a f a w

b i z g v t l j t p z k b g q

o n u y i x q d g o c i r o n

f s s p t s v i t a m i n b 12

l e z e a x a n t h i n v o i

a l n q m e m m n w w x s u o

v e f h i n h v i t a m i n d

i n o g n d q h a q k p y i i

n i l q e t o v b f s w y h d

v u a c h o l i n e p a w c e

c m t k o k g i o p h r q a x

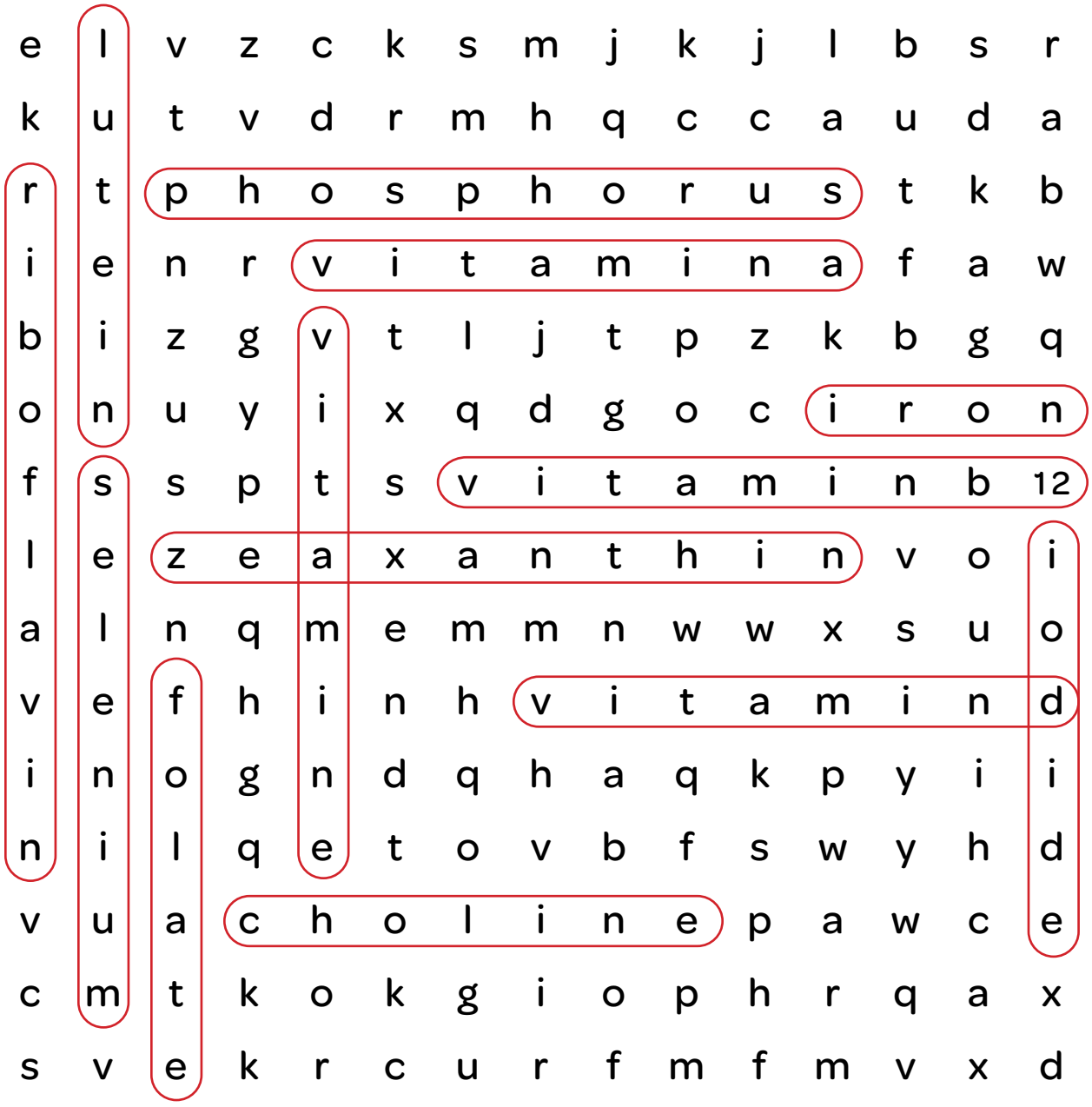
s v e k r c u r f m f m v x d

Key Nutrients of Eggs Wordseach

Look for the following words in the wordsearch.

Vitamin B12	Lutein	Iron	Phosphorus	Riboflavin
Choline	Zeaxanthin	Folate	Vitamin A	Iodide
	Selenium	Vitamin D	Vitamin E	

Go to Egg Nutrition 101 to see what all these nutrients do for your body!



Eating Well with Canada's Food Guide

For more information please visit Canada's Food Guide Canada.ca/FoodGuide

Draw and colour a healthy meal idea

Vegetables & Fruits

Canada's Food Guide recommends filling half your plate with vegetables and fruits. Also, veggies and fruits can be great as snacks.

There are lots of different textures and tastes to enjoy, such as: pears, plums, apples, berries, broccoli, peaches, peppers, cabbage, spinach, carrots, cucumbers and melons.

Protein Foods

Protein is important for staying healthy and building our tissues and muscles.

A quarter of your plate should be protein foods, which include: eggs, lean meats and poultry, nuts and seeds, fish and shellfish, dairy products, beans, peas, lentils, fortified soy beverages, tofu, soybeans and other soy products.

Whole Grain Foods

Try making a quarter of your plate whole grain foods. They are important sources of fibre as well as vitamins and minerals.

Examples include: quinoa, whole grain pastas, whole grain breads, whole oats or oatmeal, and brown or wild rice.

BC egg Learning Eggventures

bcegg.com

Activity Five

Farm Fresh: The Journey of the Egg from Farm to Fork

TEACHER BACKGROUND

Eggs travel from the farm where hens lay them, to a grading station where they are washed, inspected for quality using a process called "candling," sorted by size, and packaged. Then they are transported to grocery stores in refrigerated trucks, ready for purchase by consumers.

MATERIALS

- Computer and projector with access to the internet
- Student Handouts:
  - *How Eggs are Graded Video Viewing Guide*
  - *Egg Farming Careers Matching* Handout or *Online Egg Farming Careers Matching Game*
  - *Careers in the Egg Industry* Handout

INTRODUCTION

- Watch How Eggs Are Graded Video
- After watching, split students into partners and see if they can answer the questions on the *How Eggs are Graded Video Viewing Guide*.
- Watch video again, and have students add answers to their questions, as well as adding any questions they still have about the process of bringing eggs from the farm to table. Discuss with students how food safety is of the utmost importance in this process and starts on the farm.

CONTINUED

Activity Five

Farm Fresh: The Journey of the Egg from Farm to Fork continued

INTRODUCTION continued

- Food Safety Starts on the Farm:
  - Farmers keep their eggs as free from manure as possible through one of the many systems in their barns. The slatted floors are designed for hen's feet and allow for manure to fall through the floor, which keeps it away from the eggs.
  - Eggs are collected once or twice a day and put into a cooler. Keeping eggs at the correct temperature from farm to the store is also very important. Eggs are kept cool on the farm, and at the grading station, and are transported in refrigerated trucks from farm to the grading station and to the store. There are temperature checks at every stop, and they are carefully monitored.
  - Eggs are washed with a food safe soap at the grading station. While the washing helps to ensure the egg is free from bacteria like e.coli, it also removes the protective membrane that is on the egg. Once the membrane is gone, the egg becomes porous and must be refrigerated. In many other countries, eggs are not washed and the membrane remains intact. This means the eggs can be safely stored on the counter.

BODY

- Ask students if they can think of any jobs that are related to egg production. Brainstorm a list on the board (try and get students thinking about the various places eggs go (farm, grading station, store, transportation, restaurants, etc.)
- Distribute *Egg Farming Careers Matching* Handout or share link for Online Egg Farming Careers Matching Game and have the students match the career with its description. This can be done in partners or small groups.
- Have them share what career interests them the most with a small group.

CLOSING

- As a culminating activity distribute *Careers in the Egg Industry* Handout. Have students select a career and complete the answers to the handout. They can then use this information to present their findings in a presentation format (Canva, Google Slides, etc.)

LINKS

- How Eggs are Graded Video: https://www.youtube.com/watch?v=dWxjpM5fwac
- Online Egg Farming Careers Matching: https://www.flippity.net/ma.php?k=e/2PACX-1vTpoGdr3GfIYSaebD0H7fPRTKradIRwu0WP6wOtuCO9ECz51ibLSfp6IjXToNIY1Wdu_ndx161CjtFC
- Careers in the Egg Industry: https://www.getcracking.ca/education/resource/careers-in-egg-farming/

Name: Date:

Match the Egg Farming Career with its description

Career	Description
Egg & Pullet Farmer	This career cooks with eggs in unique ways to support the versatility of eggs in our daily diet and perhaps shares them at a restaurant.
Egg Grader	This career shares positive messages about eggs to a wider audience.
Veterinarian	This career supports the making of cookbooks, recipe videos, and products.
Feed Specialist	This career develops lessons, activities, and programs for schools to learn about egg farming.
Truck Driver	This career delivers eggs to the grading station for inspection and sorting.
Teacher	This career professionally supports the complex systems inside and outside the barn. They help with repairs and maintenance.
Nutritionists	This career is responsible for providing balanced and nutritious feed for hens.
Writers	This career visits farms to ensure all industry health and care standards are met.
Farm Inspectors	This career specializes in the caring for the health and wellness of laying hens, and other farm animals.
Chefs	This career receives eggs from the farm for cleaning, inspection, and sorting before arriving at the store.
Recipe creators	This career takes care of hens, their barn, and collects eggs every day.
Engineers/Mechanics	This career supports egg farming with all written communication. From blogs, social media, and more.
Social Media Influencers	This career provides health information about eggs, and how to include them in a healthy diet.

Match the Egg Farming Career with its description

Career	Description
Egg & Pullet Farmer	This career takes care of hens, their barn, and collects eggs every day.
Egg Grader	This career receives eggs from the farm for cleaning, inspection, and sorting before arriving at the store.
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Chefs	This career cooks with eggs in unique ways to support the versatility of eggs in our daily diet and perhaps shares them at a restaurant.
Recipe creators	This career supports the making of cookbooks, recipe videos, and products.
Engineers/Mechanics	This career professionally supports the complex systems inside and outside the barn. They help with repairs and maintenance.
Social Media Influencers	This career shares positive messages about eggs to a wider audience.

Name: **Date:**

Watch Video: https://www.getcracking.ca/education/resource/careers-in-egg-farming/
think AG: https://thinkag.ca/en-ca/explore-careers#location-bc

The term "agricultural careers" brings to mind for many an image of a farmer in overalls maneuvering a tractor through a field of wheat, or a rancher throwing feed to the animals. There are many options on the agricultural career ladder, however, from farm laborers to animal scientists to marketing managers. In order for food to be produced, agricultural experts in many different occupations will always be necessary. In this lesson you will explore careers related to BC's Egg Industry.

Career Name: Description:	**Drawing:**
Training and Education *What education is needed? How long will you attend school?*	**Work Environment:** *Where do you work? Who do you work with?* *What do you wear?*
Career Opportunities and Outlook: *What is the salary? What are the growth opportunities?*	**The reason I am interested in learning about this career is...**

Activity Six

Green Eggs (and Ham): Eco- Friendly Practices on BC Egg Farms

TEACHER BACKGROUND

BC farmers are continually seeking ways to protect the environment and continuously improve on efficiencies. Their goal is to ensure that the land they cultivate and inhabit remains viable for future generations while producing top-quality eggs for consumers while increasing productivity and reducing waste. Canadian egg farmers actively invest in research and initiatives aimed at lowering emissions that affect air, water, and soil. Ongoing innovation and technology are consistently advancing egg production methods in Canada.

MATERIALS

- 3 large pieces of paper/ posterboard
  - One with AIR written in the middle
  - One with WATER written in the middle
  - One with SOIL written in the middle
- Markers (in 2 colours)
- *Egg Farm Housing Type Comparison Poster*
- *What's Happening on BC Egg Farms Interview*
- Index cards

INTRODUCTION

- Ask students to think about the various BC Egg Barn Tour Videos they have seen.
- Show them *Egg Farm Housing Type Comparison Poster* and discuss the different sizes of space needed for each type of housing.
- Ask: How does the space impact the environment?
- Ask: What do hens need
  - Feed, water, shelter, steady temperature, fresh air, a clean barn

CONTINUED

Activity Six

Green Eggs (and Ham): Eco- Friendly Practices on BC Egg Farms continued

INTRODUCTION continued

- BC Egg Farmers are always looking for ways to lower emissions and their environmental impact, some of their main concerns are with air, water and soil.
- Thinking about what you have learned so far about BC egg farms, what do you think farmers are doing on their farms about each of these things?
- Display 3 large pieces of paper around the room and give each student one colour marker. Ask then to write ways they have seen BC egg farmers care for air, water and soil. They can also write ways they think that BC egg farmers can or could do these things.
- Once students have had time to record ideas bring them back to the larger group and then tell students they can add more ideas at the lesson conclusion.

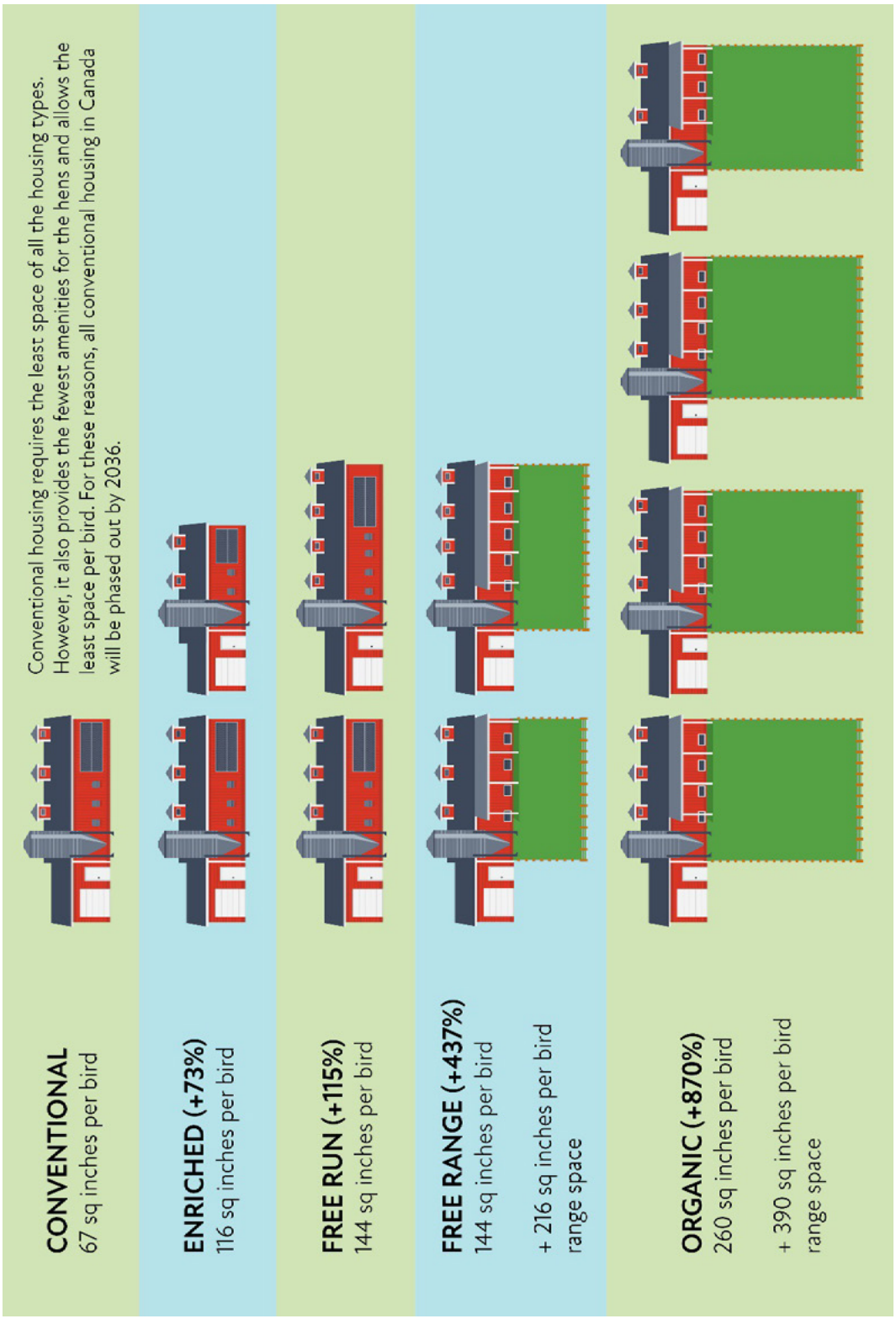
BODY

- Break students into partners or groups of three and have them read through the *What's Happening on BC Egg Farms Interview*.
- Then have them use a different colour marker and add more items to the large papers, with what they have learned.
- Lead students in a short discussion about what they learned from the interview and guide them to discuss how farmers are using technology to help reach their sustainability goals.

CLOSING

- Give students the following prompt and have them write it on an index card. After they have finished the prompt, they can display it at the front of the room for others to read.
  - BC Egg Farmers practice sustainability on their farms by _____.

Egg Farm Housing Types Comparison



Interview

What's Happening on BC Egg Farms?

1. Please introduce yourself.

My name is Joanne and I work with Egg Farmers in BC. I thoroughly enjoy spending time on BC Egg farms to learn more about sustainable farming practices.

2. We often discuss sustainable practices on BC Egg Farms. Can you share some actions BC Egg farmers take to safeguard our air, water, and soil?

BC Egg farmers are committed to caring for their land every day. They are passionate about their work, and many of them grew up on the farms they now manage, with some farms being family-owned for generations.

A significant advancement observed on BC Egg farms is the use of technology to monitor barns and flocks. Computers that track temperature and air quality enable farmers to operate as efficiently as possible. Efficiency is crucial, as it reduces waste; maintaining optimal barn temperatures ensures that nothing is overworked, leading to fewer emissions. Additionally, Canadian farmers utilize a tool called NESTT (National Egg Sustainability Technology Tool), which allows them to input farm data and undergo a sustainability review. Such technology helps BC Egg farmers maximize their efficiency.

3. That's fascinating! What other innovations have you seen on BC Egg Farms?

Recently, during a farm visit, I noticed that they had installed solar panels on some of their barn roofs. They mentioned that the energy generated from these panels powers all the lights, fans, and temperature controls in their barns, significantly reducing their electricity consumption.

4. What measures do BC Egg Farms take regarding the manure produced by chickens?

BC Egg Farmers are very mindful of soil health, which is vital for growing food! They have a vested interest in this as they enjoy eating, just like their hens. BC Egg farmers apply the manure to their fields or transfer it to other farms, where it can enrich the soil. We even have a farmer who spreads their hens' manure on their own crop fields and then turns those crops into feed for their hens to eat!

CONTINUED

5. ***What a wonderful way for BC Egg farmers to support the environment! What about water management on the farm?***

   That's a great question! In some barn videos, you can see hens drinking from small, red dish-shaped outlets. This design ensures that the hens have access to fresh, clean water while minimizing spills that could lead to waste. The mechanism, which requires hens to push on a small nozzle to activate the water flow, also prevents water from becoming dirty and undrinkable.

6. ***Can you share some of the ways BC Egg farms contribute to waste reduction initiatives?***

   One of the most significant ways this occurs is through the hens' feed. Their diet consists of corn, wheat, fats, and soybean meal, many of which help "upcycle" food products that would otherwise be discarded. This includes grains that are cracked or unsuitable for human consumption, frost-damaged wheat, and feed-grade corn that lacks the quality for human use. In addition, some feed companies even use spent grains from breweries in their feed mix, keeping that brewery waste out of landfills and putting it to good use. Most hen feed for our egg farms is milled in BC by local feed companies, which also reduces emissions associated with transportation.

   When hens reach around 72 weeks of age, they are at the end of their laying cycle. Specialized crews come to the farms to catch the hens, which are then humanely euthanized and sent to a processing plant. There, all parts of the hen are utilized in food products such as chicken noodle soup, pet food, and bone or blood meal for garden fertilizer, ensuring no part of the hen goes to waste.

7. ***Thank you for detailing the numerous ways BC Egg Farmers produce eggs while minimizing their environmental footprint!***

   You are very welcome!