Classroom Activity Egg Experts

grade range **3-5**

Subject

Science

Objectives

Students will:

- Analyze the similarities of egg-laying animals
- Collaborate to research the egg of a certain animal class
- Compare and contrast eggs of different animal classes
- Develop a summary statement of wonder or question they still have regarding egg-laying animals

Overview

In this activity, students will investigate the similarities and differences between the eggs of three vertebrate classes. They will begin by classifying vertebrates into fish, amphibians, reptiles, mammals, and birds—as well as exploring which of these animals lay eggs. After discovering a dinosaur egg during the TimePod Adventure, they will continue to learn about the eggs of different animals. They will watch a short video as they consider the similarities that all eggs share. They will then participate in a jigsaw activity in which they work in small groups to become experts about fish eggs, reptile eggs, or bird eggs, and they will educate their peers on what they have learned. They will ultimately use their knowledge to collaboratively compare and contrast the eggs of these different vertebrate classes, and they will construct a wonder or ask questions they still have regarding egg-laying animals.

Duration (Three class sessions)

- Boot Up: 20 minutes, to be implemented in a class period before the virtual experience
- Experience: 20 minutes
- Reorient and Download: 45 minutes, to be implemented in a class period following the virtual experience





Materials

- Boot Up Vertebrate Cards, one set per student pair (cut out in advance)
- Boot Up Vertebrate Image (optional), for the educator to project
- *TimePod Adventures* app loaded on devices, at least enough for pairs to share in <u>*Timepod Adventures App*</u>
- Device with the ability to project video, one for the teacher
- Video: Baby Chick Hatching | Egg Hatching
- Reorient and Download: Fish Eggs handout, enough for one-third of the class
- Reorient and Download: Reptile Eggs handout, enough for one-third of the class
- Reorient and Download: Bird Eggs handout, enough for one-third of the class
- Devices with internet access, enough for half the class
- Reorient and Download: Eggs-it Ticket, one per student (cut out in advance)

Tips for Using Augmented Reality

- AR provides unique experiences that can supplement curricular content and bring lessons to life. Here are some tips to help you introduce the AR *TimePod Adventures* app in your classroom:
 - Download the app on all student devices before the class session begins. Model how the app works! Mirror your phone screen on your SMART board, projection screen, or television, and begin the *TimePod Adventures* together. Call up different students to give it a try as the class observes what works and what doesn't work.
 - Consider pairing advanced students with those who may need more assistance, at least at the start!

Boot Up

Begin by distributing one set of *Boot Up Vertebrate Cards* to student pairs. Encourage them to spread out the cards in front of them, and tell them that these cards contain pictures of animals from all five classes of vertebrates! Explain that vertebrates are animals that have a backbone, and the five most well-known groups of vertebrates are mammals, birds, fish, reptiles, and amphibians. Write these five groups on the board and explain that each class shares certain qualities.

Challenge groups to sort their cards into the five classes and review the sorted cards together once pairs have given it their best shot. (You may use the Answer Key on the *Boot Up Vertebrate Cards* handout and/or display the *Boot Up Vertebrate Image* if it helps.) Then ask students to look at their sorted cards and brainstorm qualities that animals share within each group.





Mammals	Birds	Fish	Reptiles	Amphibians
 Have fur and hair Warm-blooded 	 Have feathers Warm- blooded Have a beak Most can fly 	 Have scales and fins Live in water Always breathe through their gills Cold-blooded 	 Covered in scales or plates Cold-blooded 	 Moist skin Begin their life with gills in water and then develop lungs for breathing air Cold-blooded

Next, encourage students to mix up their cards and re-sort them into animals that lay eggs and animals that don't! Review the sorted cards as a class and help students recognize that out of the animals included in the cards, the following *don't* lay eggs: Bull Shark, Manta Ray, Humans, Dogs, Dolphins, Red Kangaroos, and Cows.

Ask students: What similarities can you identify among animals that lay eggs? Encourage students to consider the class of vertebrate they belong to, as well as other characteristics that they share. Then tell the class they are about to participate in a virtual adventure that will challenge them to think more about animals!

Experience

Students will launch the *TimePod Adventures* app to collect data about a simulated experience.

Reorient and Download

Lead a class discussion to recap what students discovered during the TimePod adventure. What did students find? What did it look like? How did they determine what was inside?

Then write on the board or a piece of chart paper: "Eggs: What we already know." Ask students to help you create a list with as many facts as possible.

Next, project and share the three-minute video, <u>Baby Chick Hatching | Egg Hatching</u>. As students watch, encourage them to think about other facts and details that could be added to the list and add new ideas once the video is complete. Help the class recognize that all eggs:

- have some kind of protective covering
- support the development of an embryo (or baby)
- have a nutrient reserve (such as the yolk) to provide nutrients to the developing embryo





Explain that students will work in small groups to learn more about one type of egg: fish eggs, reptile eggs, or bird eggs. To prepare students for the activity:

- Divide the class into thirds, and give each group one of the following names: *Bird Egg Experts, Fish Egg Experts, and Reptile Egg Experts*
- Within these three groups, instruct students to form smaller groups of two or three and give each small group a corresponding Reorient and Download handout.
- Review the directions and ensure all groups know where to find devices with internet access before encouraging them to begin.

Once about 15 minutes have passed, bring the class back together and form new groups of three or four students so that each new group has at least one Bird Egg Expert, one Fish Egg Expert, and one Reptile Expert. Lead the groups in sharing, comparing, and contrasting what they learned with the following prompts:

- Share your observations and facts about the type of egg you studied.
- How are the physical structures of these eggs similar? How are they different?
- Where are these eggs laid, and where do they stay until they hatch?
- Do you think the characteristics of each egg type increase its likelihood of survival? Why or why not?

As the session wraps up, bring the class back together for a discussion of the final question listed above. Then, conclude by passing out the *Reorient and Download: Eggs-it Ticket* and ask students to summarize what they learned and share one question, or something they still wonder about.

Level Up (cross-curricular extensions)

- Art: Students can research the external shells of various eggs and then use these designs to create a mosaic.
- Language Arts: Students can write a first-person narrative from the perspective of a baby bird, reptile, or fish—starting from inside an egg.
- **Engineering:** Students can use classroom and household materials to build and design their own eggs.
- **Science:** Students can perform additional research to understand how dinosaur eggs compare to the egg type that they researched and share the comparison in a Venn Diagram.





National Standards

Next Generation Science Standards

• 3-LS4-2.: Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing.

English Language Arts

Common Core State Standards for English Language Arts

- CCSS.ELA-LITERACY.CCRA.R.7: Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.
- CCSS.ELA-LITERACY.CCRA.SL.2: Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.
- CCSS.ELA-LITERACY.CCRA.SL.4: Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience.





Boot Up Vertebrate Cards

Educator Instructions:

Cut out these cards before the Boot-Up class session and mix them up.

The grid below may also be used as an answer sheet when students sort the five vertebrate classes. Row 1 = Fish; Row 2 = Amphibians; Row 3 = Reptiles; Row 4 = Mammals; Row 5 = Birds





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Boot Up Vertebrate Handout





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Reorient and Download: Bird Eggs

Directions:

- **1.** Observe the bird egg images below and record at least three observations.
- 2. Then read the <u>Birds' Eggs</u> article and record at least three facts you have learned.

Observations	Facts
1.	1.
2.	2.
3.	3.







Reorient and Download: Reptile Eggs

Directions:

- **1.** Observe the reptile egg images below and record at least three observations.
- 2. Then read the <u>Reptile Eggs</u> article and record at least three facts you have learned.

Observations	Facts
1.	1.
2.	2.
3.	3.







Reorient and Download: Fish Eggs

Directions:

- 1. Observe the fish egg images below and record at least three observations.
- 2. Then read the *Fish Eggs* article and record at least three facts you have learned.

Observations	Facts
1.	1.
2.	2.
3.	3.







Eggs-it Ticket

Summarize, in one sentence, what you learned about eggs today.

What is one question you still have that we could learn about another day?

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