Comparing Fertilization Across Species Diagrams: Note Taker

LT: I can use visuals and text in order to describe and compare fertilization methods across species. 4.4.1

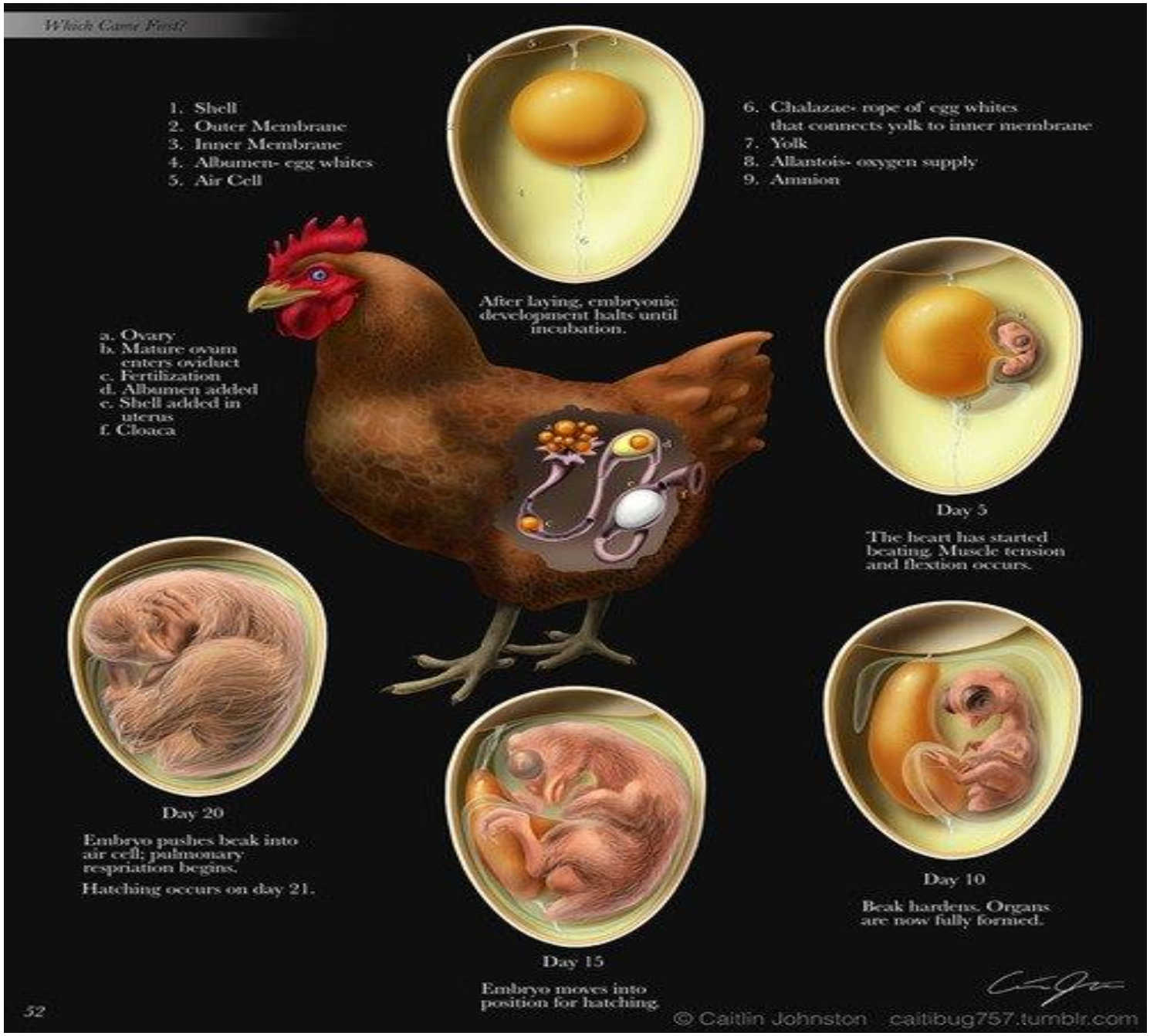
Use the visuals and text descriptions on the following pages to complete the sections below:

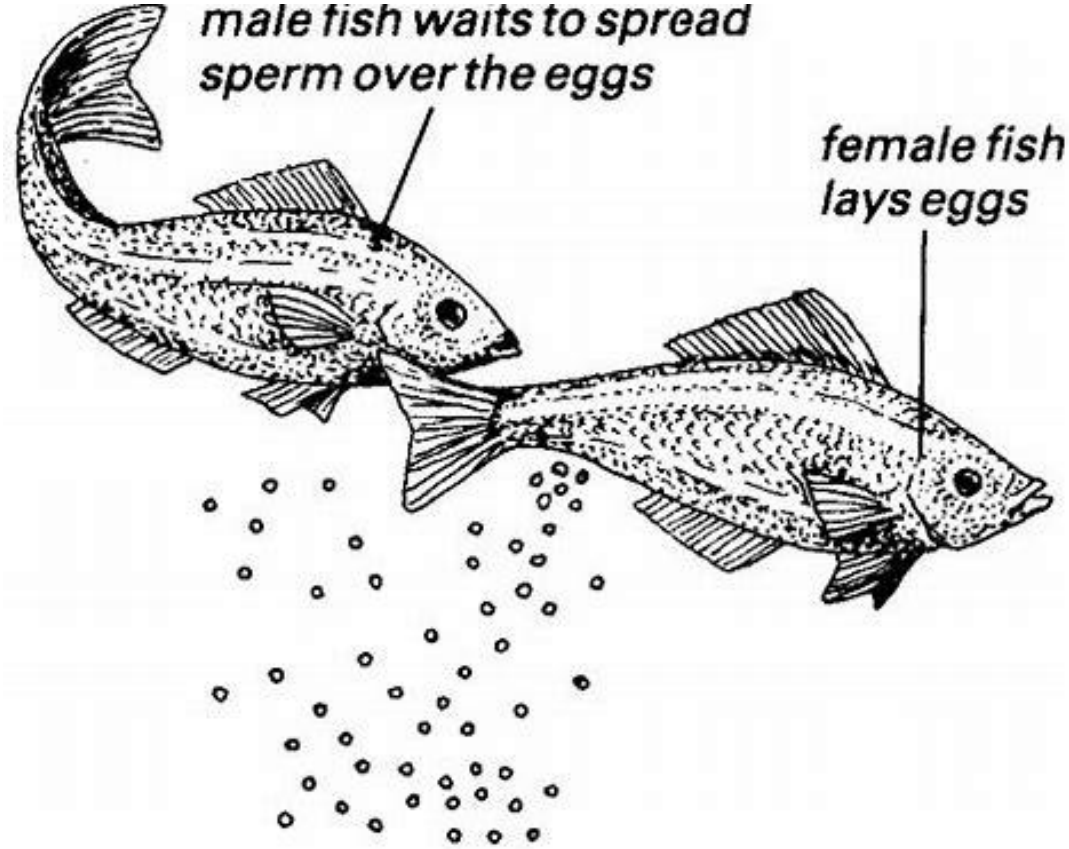
Methods of Fertilization Comparison - Notes Organizer

	Chicken	Salmon	Flowering Plant	Human
List the steps in fertilization. (Make a numbered list!)				
In this species, how does the sperm reach the egg during fertilization?				
In this species, how many eggs are fertilized at once?				

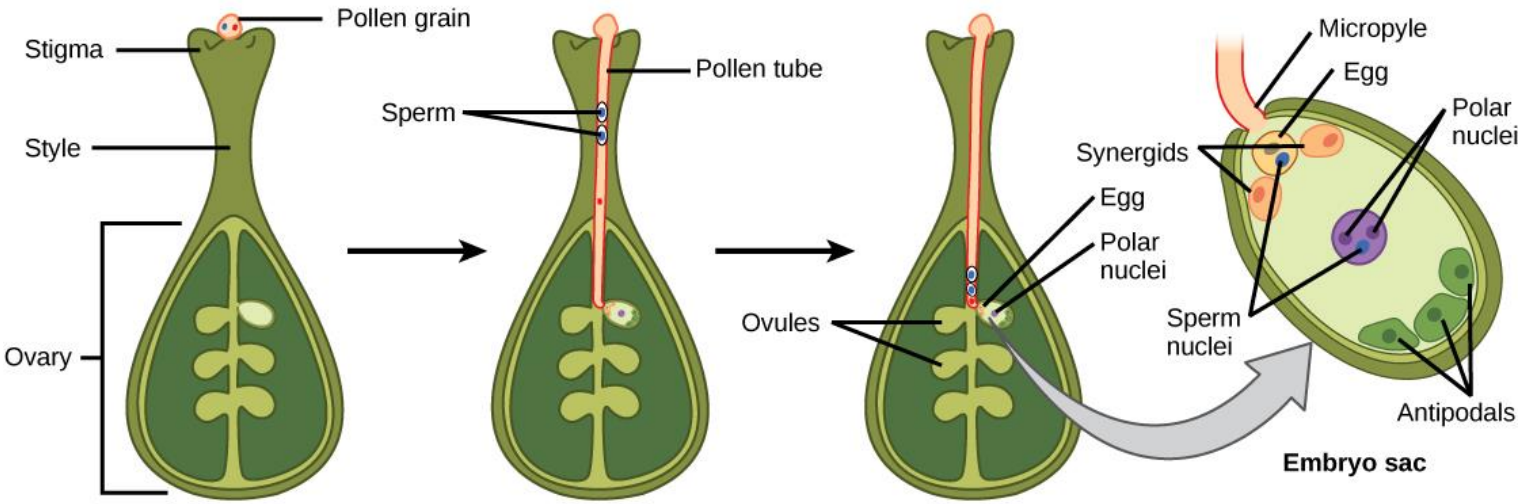
Finding Patterns to Revise Cladogram

Fertilization Comparison	
What did you learn about how different species go through the process of fertilization?	*How will this help you revise your cladogram?*

	Fertilization Diagrams
Chicken	

Salmon	 male fish waits to spread sperm over the eggs female fish lays eggs

Plant



The pollen grain adheres to the stigma, which contains two cells: a generative cell and a tube cell.

The pollen tube cell grows into the style. The generative cell travels inside the pollen tube. It divides to form two sperm.

The pollen tube penetrates an opening in the ovule called a micropyle.

One of the sperm fertilizes the egg to form the diploid zygote. The other sperm fertilizes two polar nuclei to form the triploid endosperm, which will become a food source for the growing embryo.

Human


FERTILISATION PROCESS
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IMAGE ID: 342421172
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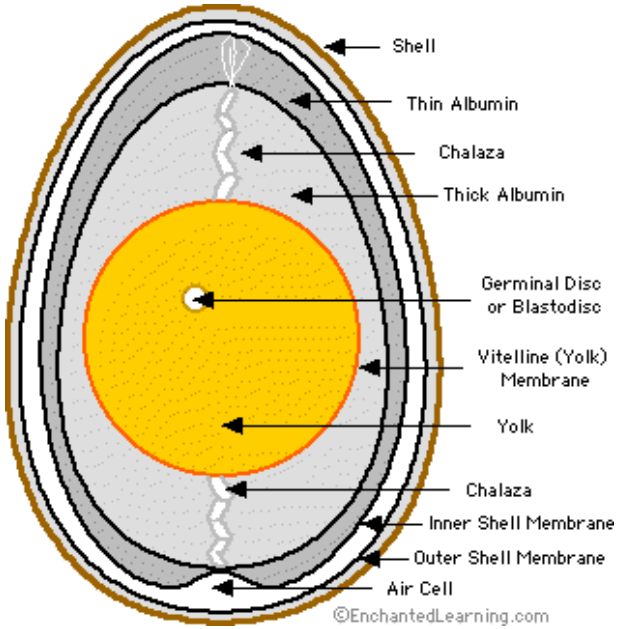
The Process of Fertilization in Chickens
(Excerpted from EnchantedLearning.com)

The Yolk: The chicken egg starts as an egg yolk inside a hen. A yolk (called an oocyte at this point) is produced by the hen's ovary in a process called ovulation.

Fertilization: The yolk is released into the oviduct (a long, spiraling tube in the hen's reproductive system), where it can be fertilized internally (inside the hen) by a sperm.

The Egg White (albumin): The yolk continues down the oviduct (whether or not it is fertilized) and is covered with a membrane (called the vitelline membrane), structural fibers, and layers of albumin (the egg white). This part of the oviduct is called the magnus.



Sockeye Salmon Frequently Asked Questions
(Excerpted from National Park Service, Sockeye Salmon)

How many eggs can a female salmon lay?
A female may lay between 2000-5000 eggs before she is senescent (spawned out) and dies. Larger females have a higher number of eggs. 500-1000 eggs are laid per nest. A female salmon will dig a series of depressions (usually 4-5), known as a redd, to lay eggs in.

How many eggs will develop and return as adult spawners?
Generally, 1 in 1000 eggs will actually be able to return to its natal stream as a spawning salmon. Egg mortality and predation take a heavy toll. Salmon are subject to heavy predation rates in every age.

How do salmon spawn?
Spawning can be broken into three parts or behaviors:

- Redd selection and nest building: Redd (nesting site) selection is the task of the female. Stream velocity, water depth, and gravel size determine the general suitability of the site.
- Courtship and mating: A dominate male is able to fight/chase off competitors and then "quivers" next to a female when she is ready to spawn. Simultaneously, the female releases her eggs and the male fertilizes them with his milt (sperm) while both fish are side by side. Eggs are temporarily adhesive after they are released which keeps them attached to each other and the gravel during burial.
- Nest closure: This is the reverse of building the redd. Females travels upstream of her nest and fans the gravel to bury her eggs.

After spawning, males will continue to remain sexually active and seek other females to mate with. The female will remain at her redd defending it until she dies about a week later.

Steps in Fertilization - Flowering Plants

(Excerpted from Education-Portal.com)

The flower is formed to begin the process of reproduction. The female parts will create an ovule or unfertilized egg. The egg or eggs will remain in the ovary and wait to be fertilized. The male parts, in particular the anther, will produce pollen, which contains the sperm needed to fertilize the egg.

Meanwhile, the sterile parts of the flower also begin to do their jobs. The petals and the fragrance of the plant attract small creatures like insects, small birds, and bats. Although flowers attract many small animals, let's stick with using the bee as an example for this lesson. Bees fly around the flower, usually getting nectar, a sugary substance that the bees use to make honey. While the bee is flying around the flower, pollen grains located at the top of the anther stick to its feet and body.

The bee will travel from flower to flower of different plants, dropping and collecting pollen along the way. When a bee takes the pollen from one flower to another of the same species of flowering plants, the fertilization process kicks into gear. The pollen will drop onto the sticky stigma of the carpals (the female part). The pollen will then travel down the tube and the sperm will make its way to the ovary for the waiting unfertilized ovule, the egg.