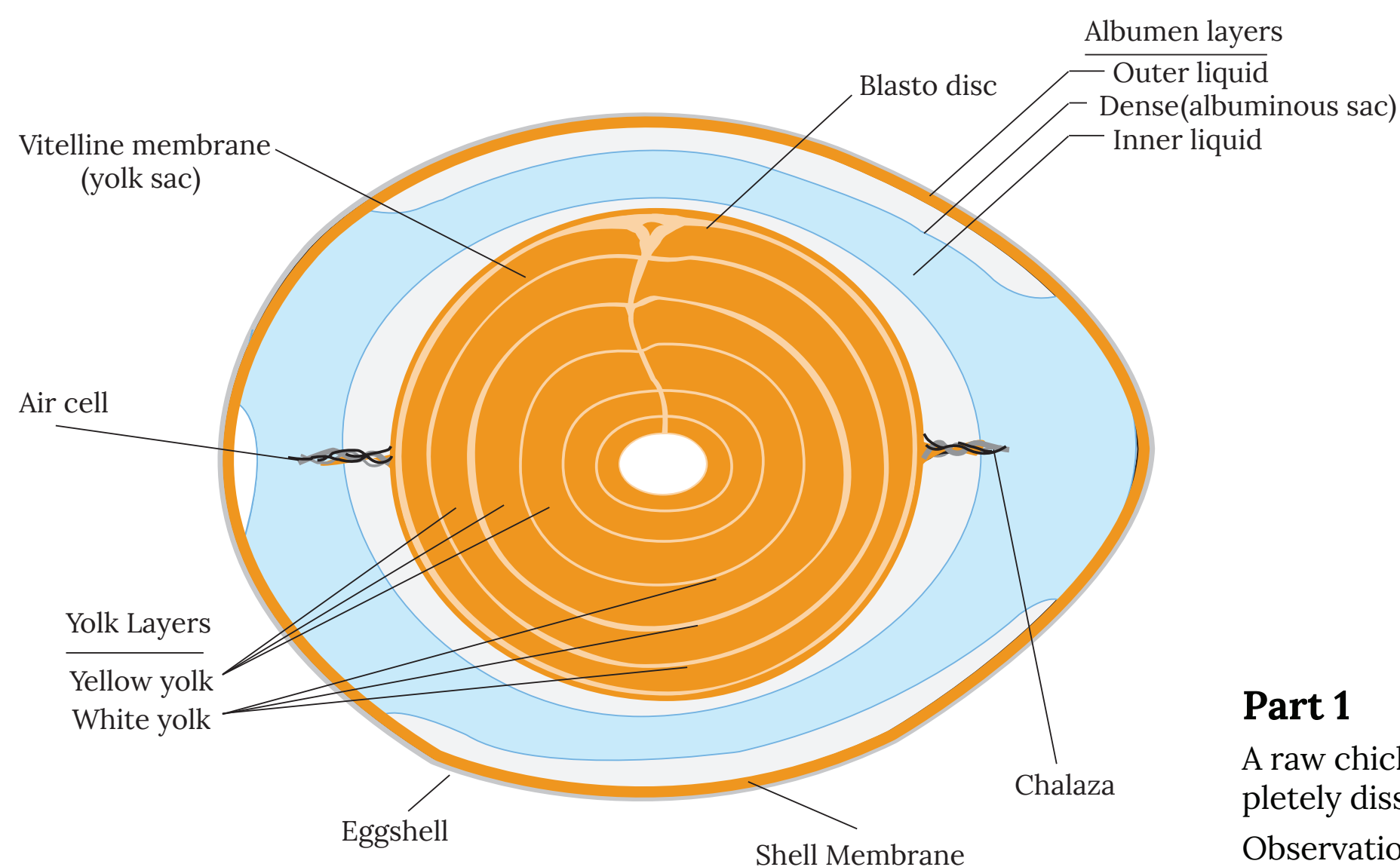


THE SCIENCE BEHIND An Egg Experiment

How to Study Osmosis and Diffusion with a Chicken Egg

(see our Over Easy freebie for the full experiment!)

Structure of a Freshly Laid Chicken Egg



Part 1

A raw chicken egg is placed in vinegar until the shell completely dissolves (24-48 hours).

Observations: Bubbles form immediately all over the eggshell. After 48 hours, the egg is rinsed and feels rubbery. No longer has a hard shell.

WHAT'S HAPPENING?

In Part 1, the vinegar reacts with the calcium carbonate in the eggshell, producing carbon dioxide gas.



The vinegar does not react with the membranes. When the reaction is complete, the outer membrane is left intact, keeping the egg's shape.

This membrane is riddled with tiny pores that allow the passage of gases and liquids by osmosis and diffusion.

In Part II, when the egg is placed in the corn syrup, the concentration of water inside the egg is greater than the water concentration in the sugar-laden corn syrup. Thus, the water moves out of the egg, and the egg shrinks.

A third part could be performed as well. The egg from Part 2 can then be placed in a cup of distilled water for 24 hours. Predict what you think will happen to the egg and why.



Part 2

After the egg is rinsed with water, it is placed in another cup and completely covered with corn syrup for 24 hours.

Observations: After several hours, the egg appears to deflate in the corn syrup. After 24 hours, the egg is rinsed and feels significantly lighter as well as no longer holding its shape. The corn syrup is less viscous now.