

Investigation 15.A: Comparing Embryonic Structures Answer Key**Answers to Analysis Questions**

1. Slides with evidence that cleavage has occurred will be the ones where you can see distinct cells that are approximately the same size.
2. You should note the presence of two different groups of cells if a blastocyst has formed. The blastocyst is a hollow structure, with the trophoblast on the outside and the inner cell mass on the inside.
3. You should note the presence of three layers (the primary germ layers—ectoderm, mesoderm, endoderm) if a gastrula has formed.
4. Identify any structures using the correct terminology.
5. Birds and humans have similar primary membranes that support the developing embryo.
 - Allantois works with the chorion on gas exchange in birds, and stores wastes from and absorbs calcium for the developing bird; in humans, it becomes the umbilical cord and the urinary bladder.
 - Amnion provides protection and allows for movement for the developing embryo in both birds and humans.
 - Chorion is the outermost membrane, allowing for gas exchange in both birds and humans (is the fetal portion of the placenta in humans).
 - Yolk sac and yolk store nutrients for the developing embryo in the chick (and other vertebrates); however, the yolk sac serves no nutritive function in humans (it does not include a yolk); in humans, it produces the first blood cells and helps with the formation of the digestive tract.
6.
 - a) Animals that develop in eggs that are laid and incubated outside the mother's body (such as frogs, turtles, pike, sea stars, and crows) do not develop in a placenta because the embryo does not attach to the mother to exchange gases.
 - b) The placenta develops from the chorion and extends into the uterine lining. In humans, the placenta (originating from the chorion) allows for the exchange of oxygen and metabolic wastes. In birds, the chorion serves a similar function in that it is also involved in gas exchange; however it combines with the allantois (an extra-embryonic membrane) rather than with the mother's tissues.