

3D model

Teacher instructions



Objective

Build a 3D model showing the internal structures of a hen egg: yolk, albumen, membranes, chalazae, and air cell, with labels explaining each part's function.

Materials needed (per group):

- Yellow clay/playdough → yolk
- Clear gel beads, water, or balloon → albumen
- Tissue paper → inner membrane
- Cotton pad → air cell
- Thin string/yarn → chalazae
- Plastic bowl or half-egg container → shell
- Small labels/sticky notes
- Optional: markers, scissors, glue

Step-by-step script for teacher

Step 1: Introduction 5 mins

- Show a labelled diagram of the inside of a hen egg on the board.
- Explain each part briefly:
 - Yolk: provides nutrients
 - Albumen: cushions and protects
 - Membrane: extra protective layer
 - Chalazae: keeps the yolk in the centre
 - Air cell: allows the chick to breathe before hatching
- Tell children they will create their own 3D egg interior model.

Step 2: Build the membrane 5 mins

- Place a piece of tissue paper inside the bowl/container to represent the inner membrane.
- Ensure it lines the "shell" without tearing.
- Prompt children: *"Why do you think the membrane sits just inside the shell?"*

Step 3: Add the albumen 5 mins

- Fill the inside with clear gel beads, water, or a balloon to represent the albumen (egg white).
- Discuss the difference between thick albumen (closer to yolk) and thin albumen (further out).
- Encourage careful placement so the yolk can rest on top later.

Step 4: Place the air cell 2-3 mins

- Add a small cotton pad at the wide end of the egg to represent the air cell.
- Ask: *"What would happen if the chick didn't have this space?"*

Step 5: Build the yolk 5 mins

- Roll yellow clay/playdough into a ball for the yolk.
 - Place it gently in the centre of the albumen.
 - Ask: *"Why is the yolk in the middle?"* (Answer: chalazae hold it in place, nutrients are central).
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Step 6: Add chalazae 2-3 mins

- Attach thin string/yarn to the yolk to simulate chalazae.
 - Stretch the ends gently into the albumen to keep the yolk centred.
 - Reinforce function: *"These cords help the yolk stay in the middle and protect the developing chick."*
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Step 7: Label each part 5 mins

- Children write labels on sticky notes:
 - Yolk – nutrients
 - Albumen – protection and cushioning
 - Membrane – extra protection
 - Chalazae – holds yolk in place
 - Air cell – space for breathing before hatching
 - Attach labels directly to the model or nearby.
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Step 8: Present and discuss 5 mins

- Each group shows their model and explains the function of each part.
- Optional discussion prompts:
 - "Which part is the most important for protecting the chick?"
 - "What would happen if the chalazae weren't there?"
 - "How does the albumen help the yolk?"