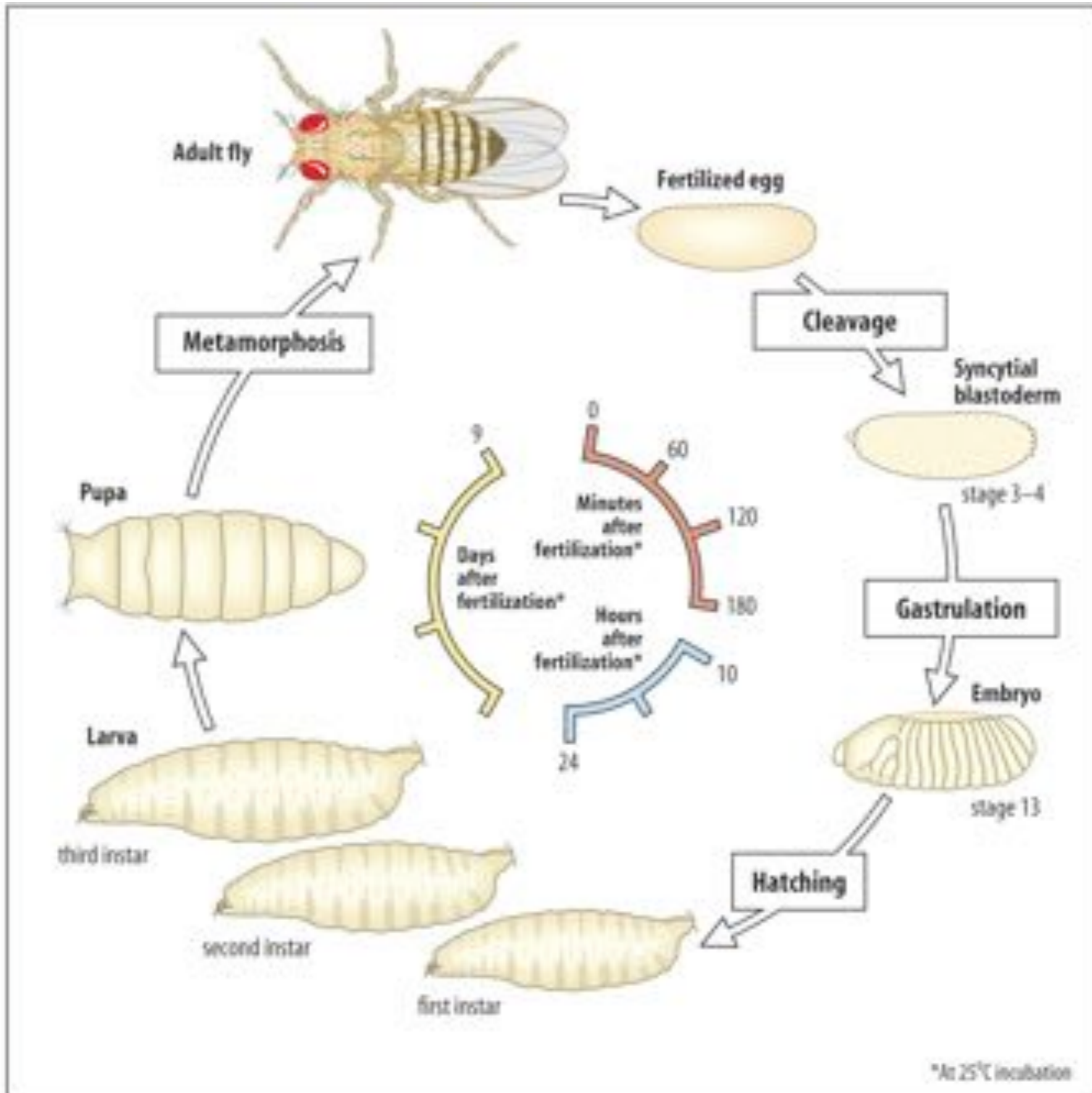


# Dissection of *Drosophila* imaginal discs

# *Drosophila melanogaster* life cycle

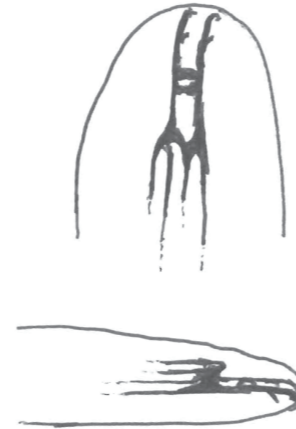


# Identifying 3<sup>rd</sup> Instar larvae

1st Instar



2nd Instar



The difference between the first and second instar lies in the size of the mouthparts. In 1st instars the mouth hooks are so small as to look like two pairs of tiny black spots. In 2nd instars the mouth hooks are larger and their structure is clearer.

2nd Instar



Clubbed anterior spiracles



3rd Instar



Branched anterior spiracles

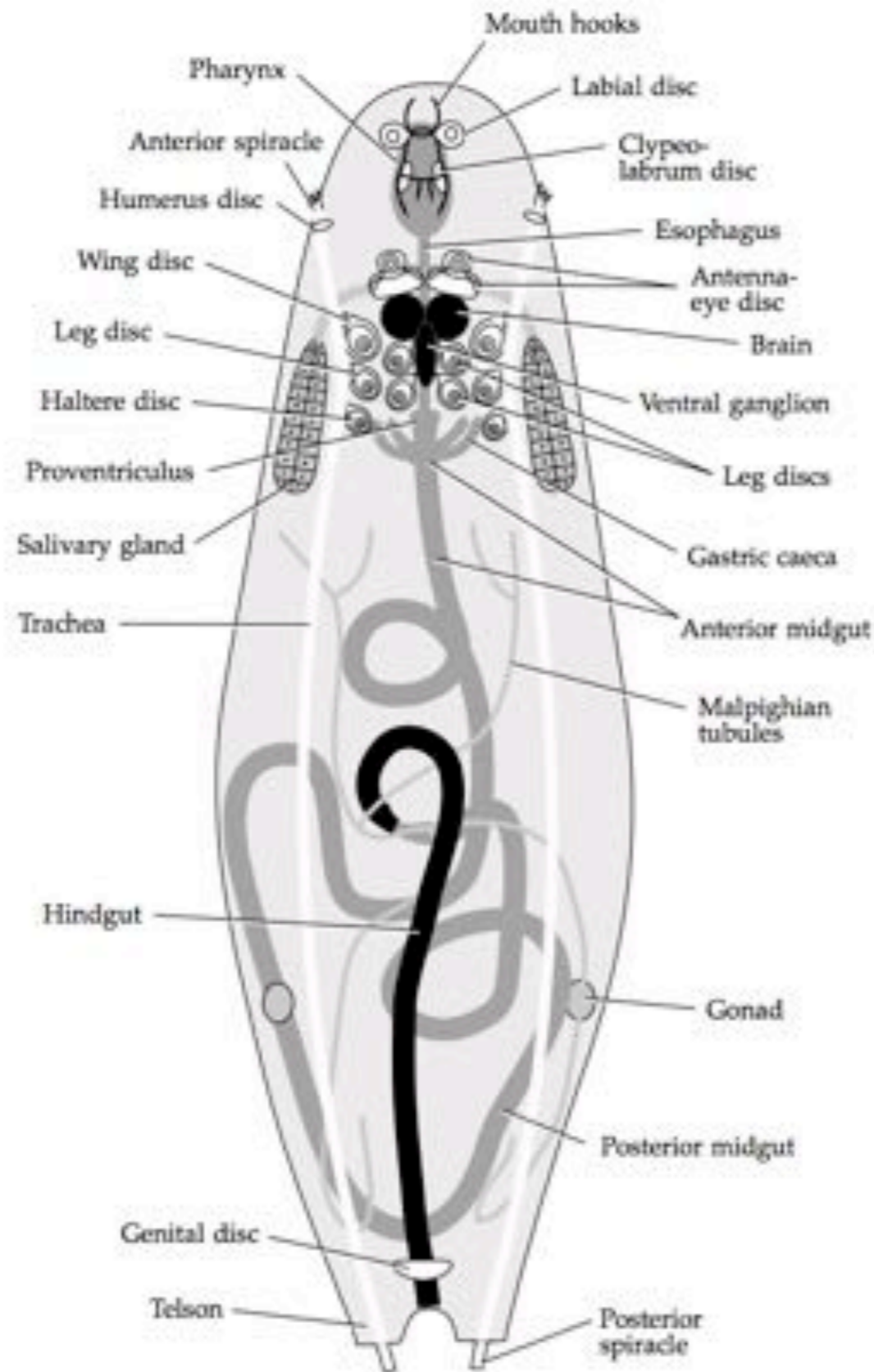


Orange ring



The difference between the 2nd and 3rd instar lies in the spiracles. In the 2nd instar the anterior spiracle is club-like, while in the 3rd instar it is branched. The posterior spiracles of the third instar also have a dark orange ring at their tip, which is lacking or weakly present in the 2nd instar. You can use this band to identify 3rd instars when they are feeding and only their posterior spiracles are visible.

# Larval anatomy



**Figure 8.3**  
Schematic diagram of a third instar larva. The fat bodies and circulatory system are not shown for the sake of clarity.

# Dissection of imaginal discs



Labial disc



Antenna-eye disc



Haltere disc



Wing disc

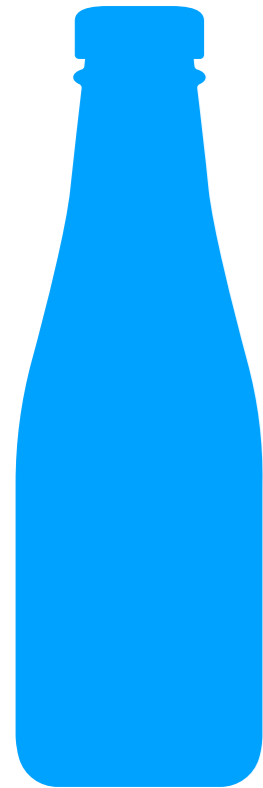


Leg disc



Genital disc

## Overview of activity



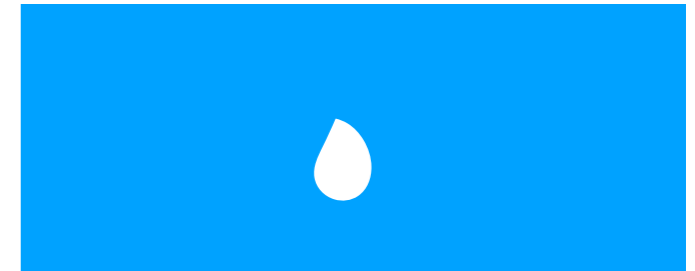
**Fly stock**



**Quick rinse**



**Dissect**



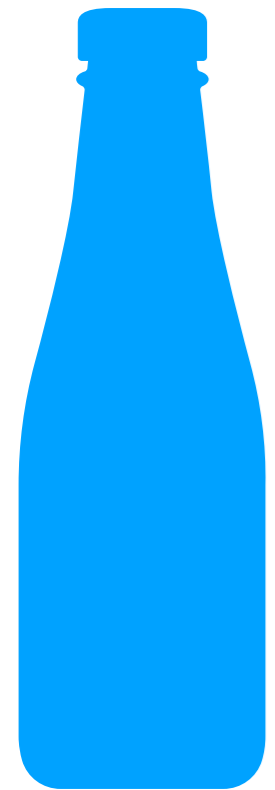
**Mount imaginal discs  
on slide and view**

**Draw external anatomy**

**Draw internal anatomy**

**Identify imaginal discs**

# Exposure of imaginal discs to Ecdysone



**Fly stock**



**Quick rinse**



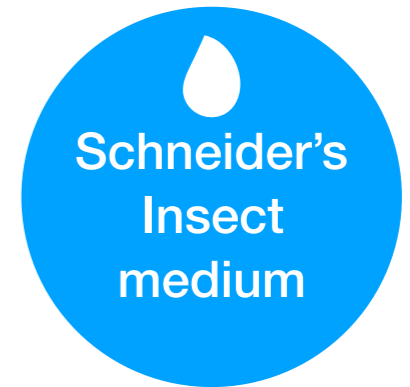
**Dissect**



**+2 $\mu$ g/ml Ecdysone**



**+0 $\mu$ g/ml Ecdysone**



**+4 $\mu$ g/ml Ecdysone**

**Culture**

# Disc Eversion After Ecdysone Exposure

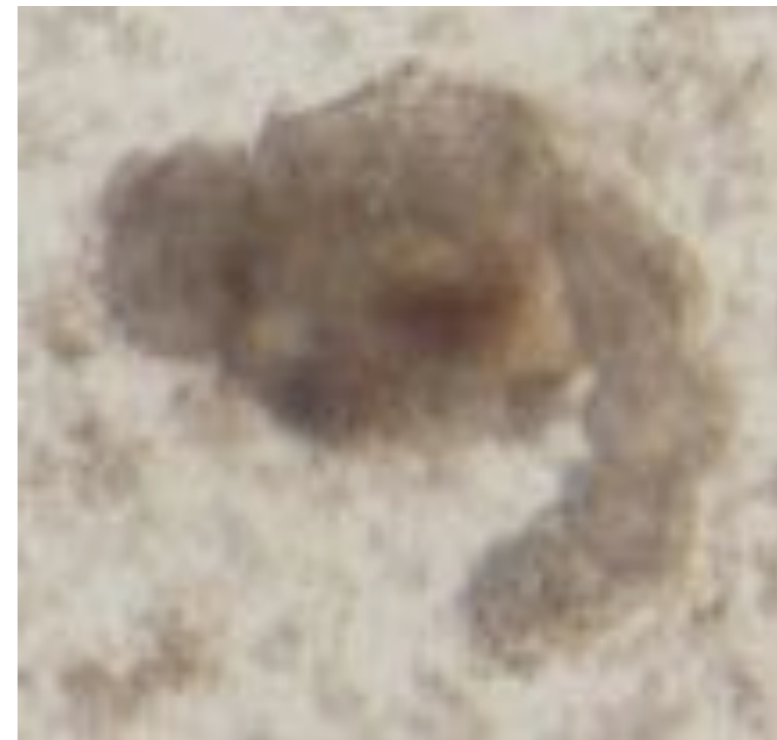
0 hrs

24 hours after Ecdysone exposure

Eye disc



Leg disc





## **Goals of activity:**

- 1. Observe and draw external anatomy of a larva**
- 2. Dissect a larva and locate the imaginal discs**
- 3. Draw internal larval anatomy**
- 4. Mount the imaginal discs on a slide and draw**