

1)STRUCTURE ,LIFE CYCLE OF FLEAS

2)THE EPIDEMIOLOGICAL IMPORTANCE OF HUMAN FLEAS



- ▶ MEDICAL ACADEMY NAMED BY S.I GEORGIEVSKIY “CFU NAMED BY V.I. VERNADSKIY”
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- ▶ 1ST COURSE STUDENTS:
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- ▶ SCIENTIFIC LEADER:SVETLANA SMIRNOVA



FLEAS:

Fleas

QUICK STATS:



Color:
Dark reddish-brown



Shape:
Flattened side to side



Size:
 $\frac{1}{12}$ – $\frac{1}{6}$ inch long



Region:
Found throughout the U.S.



STRUCTURE OF FLEAS:

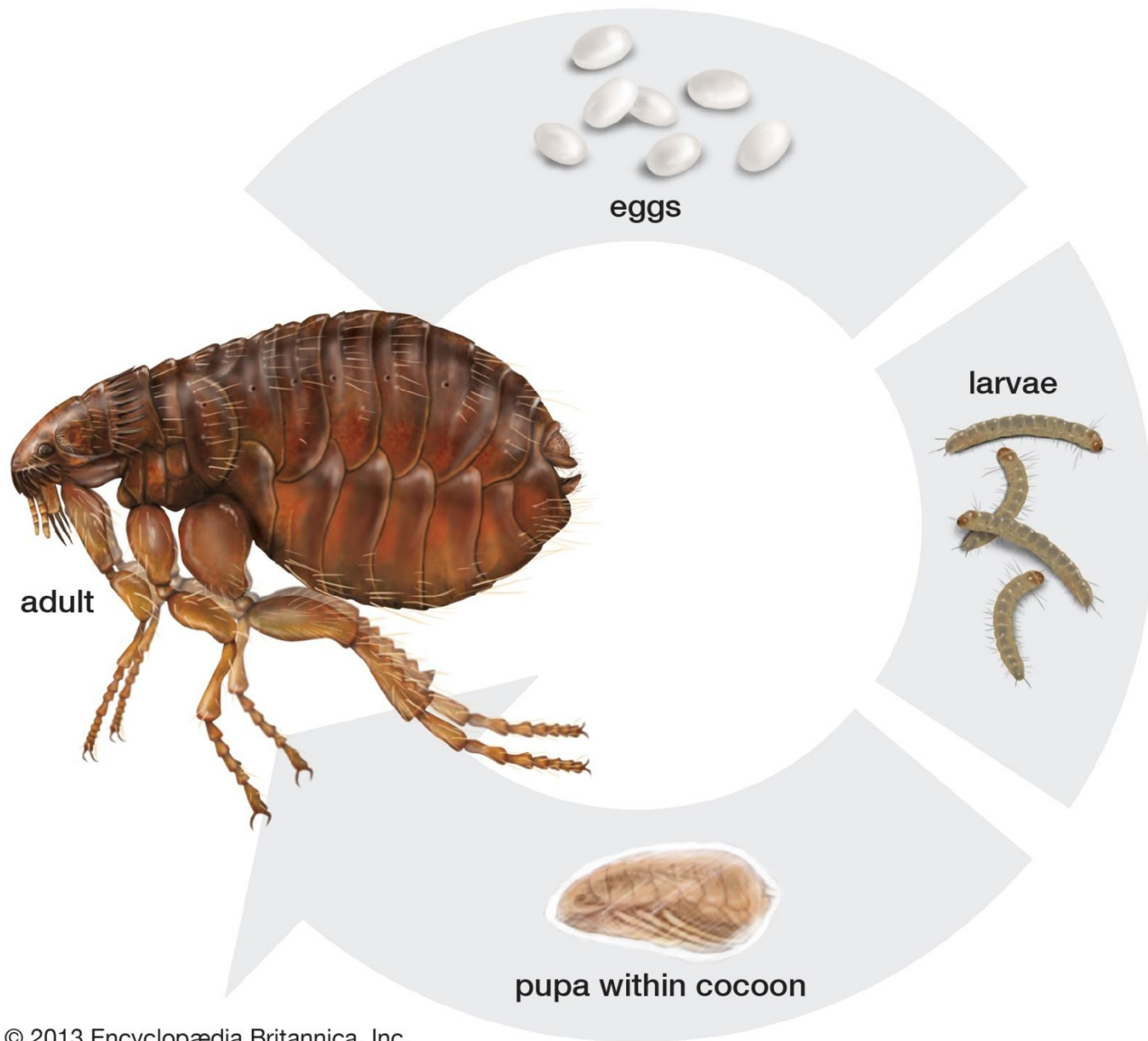
- ▶ Fleas are tiny, but anyone who has seen one can usually recognize them with ease. They're tiny, flat, wingless insects that have a knack for jumping away before you can catch them. Their bodies are covered with hard plates called **sclerites**, so if you do catch one, squashing it can be a challenge. Their hard outer shell protects fleas from everything from an animal's teeth to hitting the floor after a long jump.



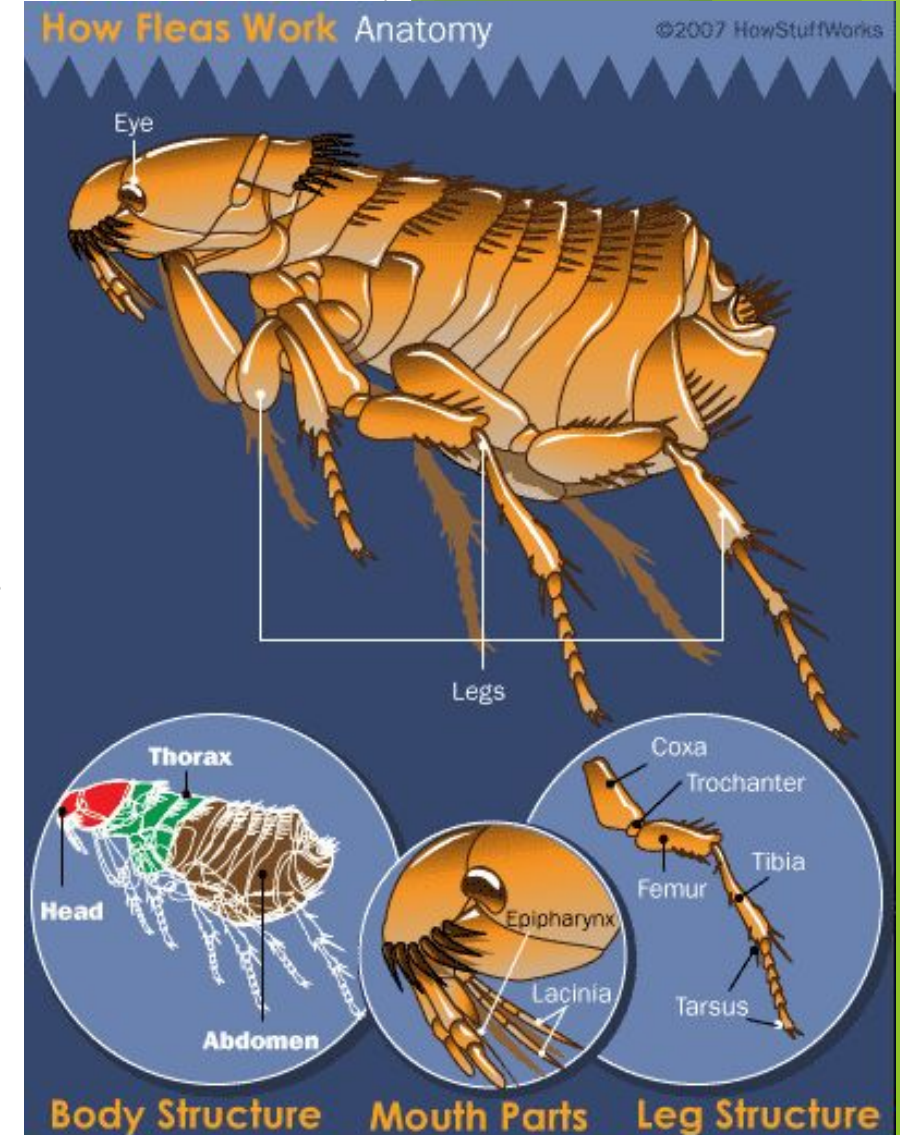
Pictures of fleas and their eggs

19 IMAGES OF FLEAS (UP CLOSE)!

- ▶ To the naked eye, a flea's **exoskeleton** seems completely smooth, but it's really covered in tiny hairs that point away from the flea's head. Their flattened bodies and these backward-pointing hairs make it easy for fleas to crawl through their hosts' fur. But if something tries to dislodge them, the hairs act like tiny Velcro anchors. This is why a fine-toothed comb removes fleas better than a brush does. The teeth of the comb are too close together for fleas to slip through, so it can pull them from the host's hair, regardless of which way fleas' hairs are pointing.



- ▶ A flea also has spines around its head and mouth -
- ▶ the number and shape vary according to the flea's species.
- ▶ The mouth itself is adapted for piercing **skin** and sucking **blood**. Several **mouthparts** come together to form a needlelike drinking tube.

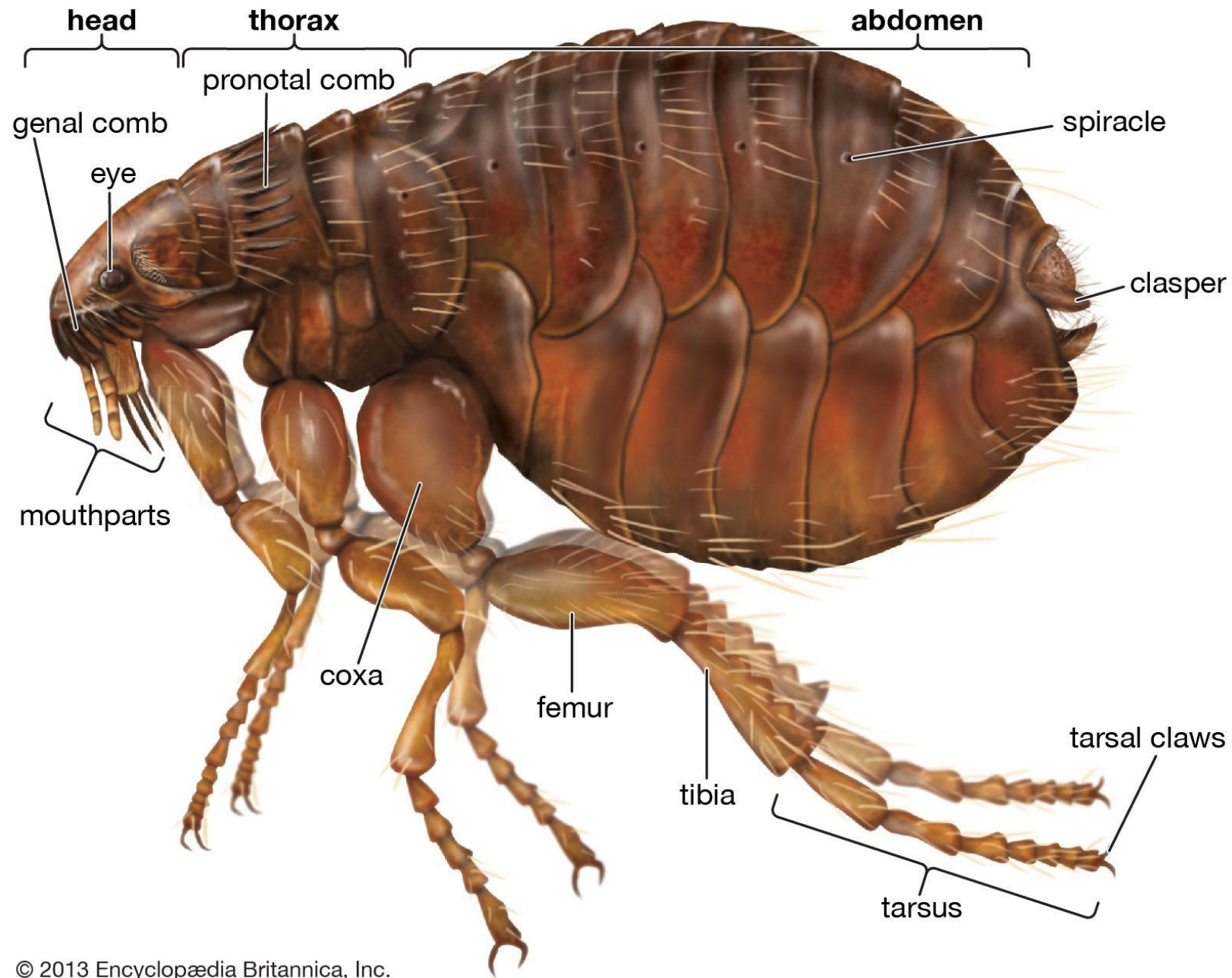


Here's a rundown:

Two sawlike **laciniae** cut the skin. They also fit together to form a saliva channel.

The **epipharynx** is like a needle. The laciniae surround the epipharynx, and together they form the **stylet**, or puncturing organ.

The **prementum** and **labial palps** form the **labium**, which supports the stylet.



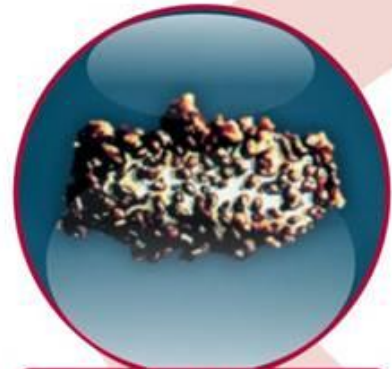
LIFE CYCLE OF FLEAS:

There are four stages in the **life cycle** of a **flea**:

- 1) egg,
- 2) larva,
- 3) pupa,
- 4) adult.

Depending on the environmental temperature and humidity levels, the total **life cycle** will take anywhere from a couple weeks to many months.

Adult fleas hatch from the cocoon and continue to infest the pet.



FLEA PUPAE

10% of an infestation¹

Flea larvae spin a cocoon and develop into pupae (approximately 1-2 weeks).²



ADULT FLEAS

5% of an infestation¹

Adult fleas lay eggs after a blood meal, which then drop off into the environment.



FLEA EGGS

50% of an infestation¹

Flea larvae hatch out of flea eggs when conditions are right (warm and humid).



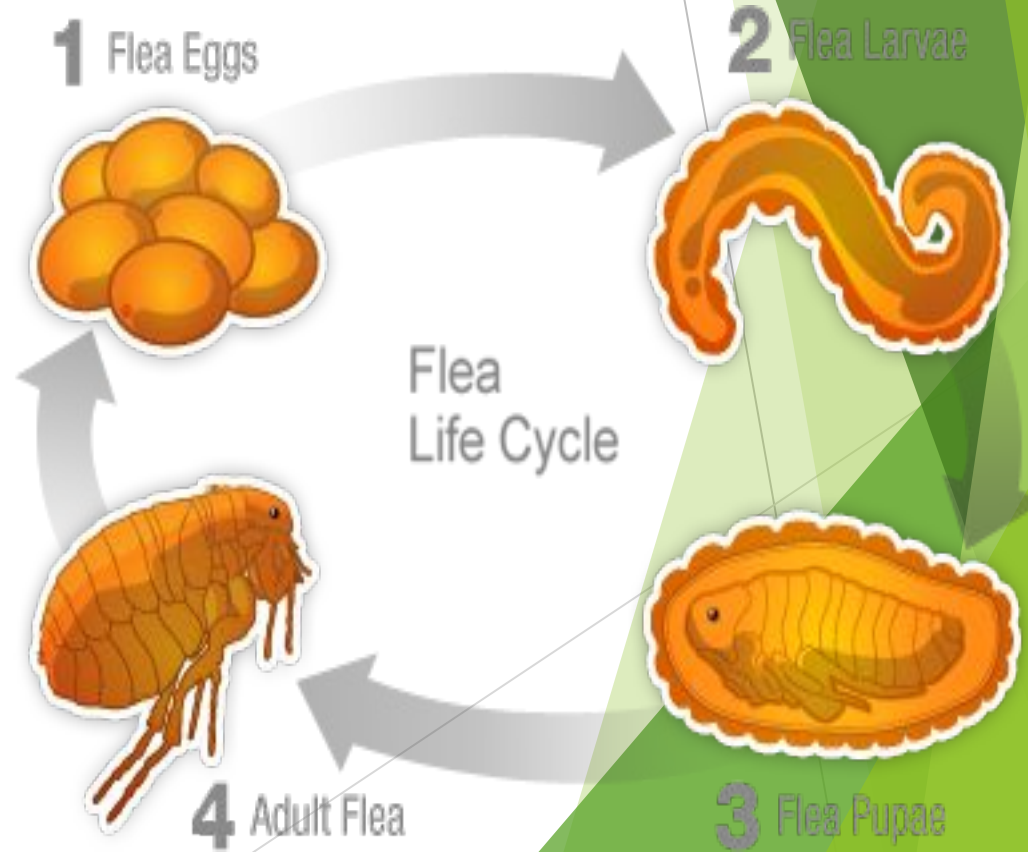
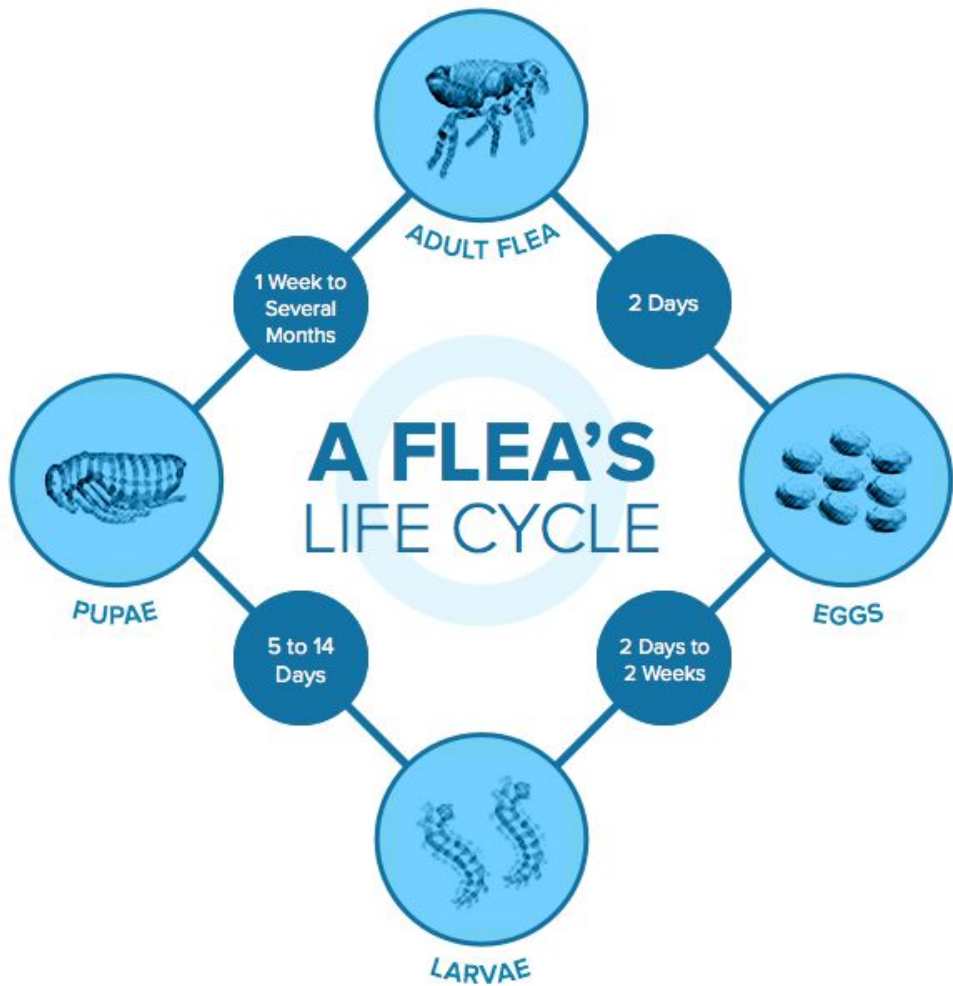
FLEA LARVAE

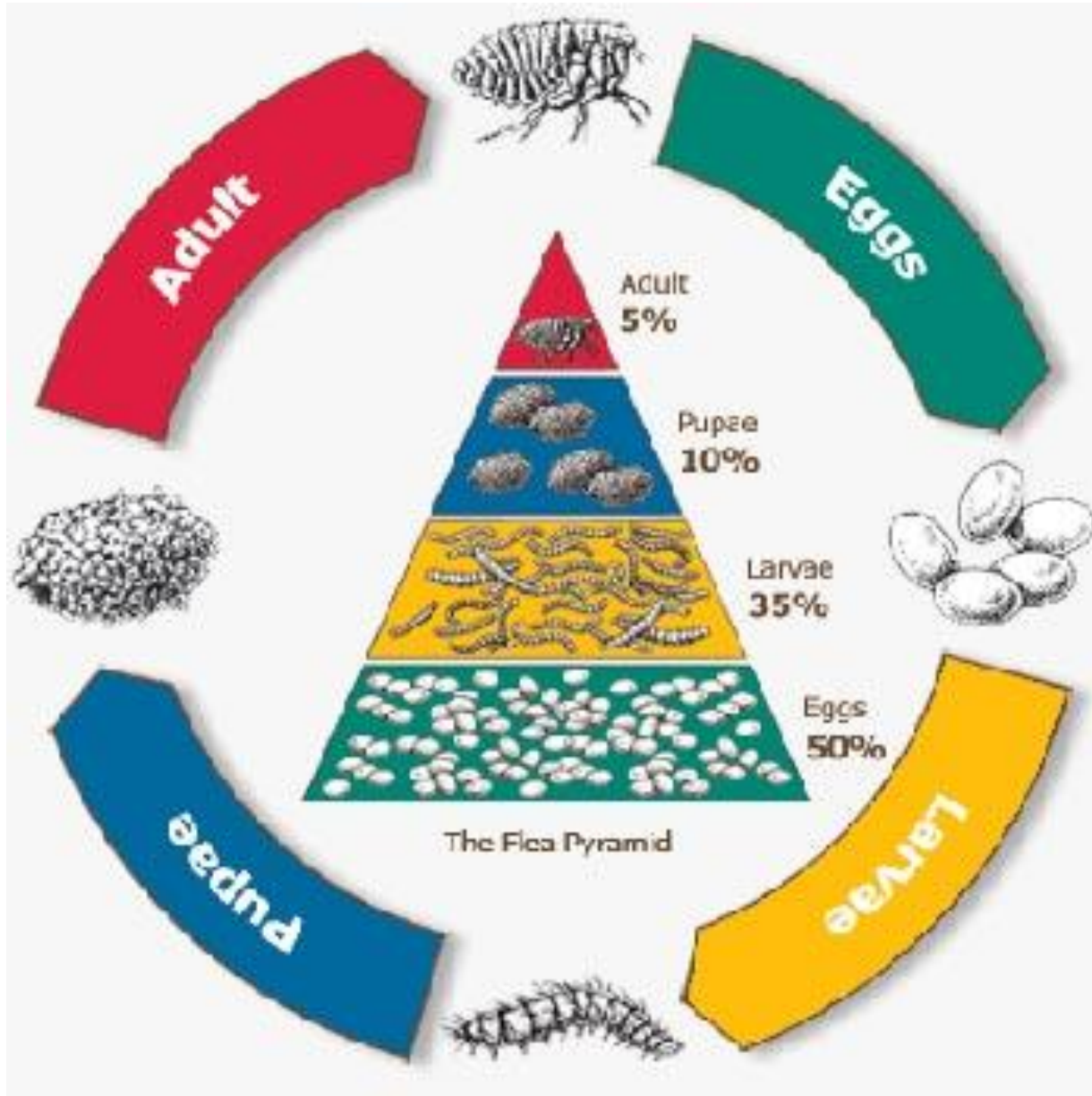
35% of an infestation¹

FLEA CYCLE

How long does it take to break the flea life cycle?

The first time to get the **flea cycle** cut and kill adult **fleas** and the second time in about 10-14 days as you wait for the complete **cycle** to stop and you need immediate relief (**fleas** are still emerging from the cocoon stages)





EPIDEMIOLOGICAL
IMPORTANCE OF
HUMAN FLEAS

Beside their role as ectoparasites, the major medical importance of fleas is their role as vectors of various pathogens to humans and animals. While more than 550 arboviruses are found in arthropods, so far surprisingly, no arbovirus has been detected which uses fleas as a biological vector. However, there is some evidence that some viruses, namely feline leukemia virus and myxomatosis virus, under artificial laboratory conditions could be mechanically transmitted by fleas

Some diseases by human fleas...

- ▶ Tungiasis
- ▶ Murine typhus
- ▶ Tularemia
- ▶ Bubonic plague

Flea associated allergies..

- ▶ Flea saliva can cause skin dermatitis in humans, which usually appears on patches of skin as itchy bumps or a rash.
- ▶ Some people can have asthmatic-type reactions when they inhale flea feces.
- ▶ Pets can also react to flea bites and will commonly develop a flea hypersensitivity or flea-bite dermatitis. As a result, animals may develop crusty lesions and may constantly scratch at their skin, often leading to fur loss.

signs and symptoms of a flea bites in humans

- ▶ Red spots with a halo.
- ▶ Itching.
- ▶ Hives.
- ▶ Rash (characterized by small clusters of bumps)
- ▶ Swelling around the bite.



Treatment for flea bites

- ▶ Resist the urge to scratch.
- ▶ Wash the bites with antiseptic soap to reduce the risk of infection.
- ▶ Apply an icepack frequently to help relieve swelling.
- ▶ Use calamine lotion, anaesthetic creams or similar to treat the itching.
- ▶ See your pharmacist for advice on appropriate antihistamine medications to reduce the swelling.

Diagnosis

Identification of fleas is performed with the use of light microscopy and taxonomic keys.

PREVENTION

- ▶ Clean animal bedding and the general surrounds thoroughly.
- ▶ Vacuum the carpets. Throw away the vacuum cleaner bag, since it will contain fleas and eggs, or use a surface spray into the bag.
- ▶ Use an appropriate spray or 'flea bomb' in your house, taking care to follow the label directions carefully.
- ▶ A persistent infestation may need to be treated by a qualified pest control operator.
- ▶ Maintain hygiene practices

Thank
you!