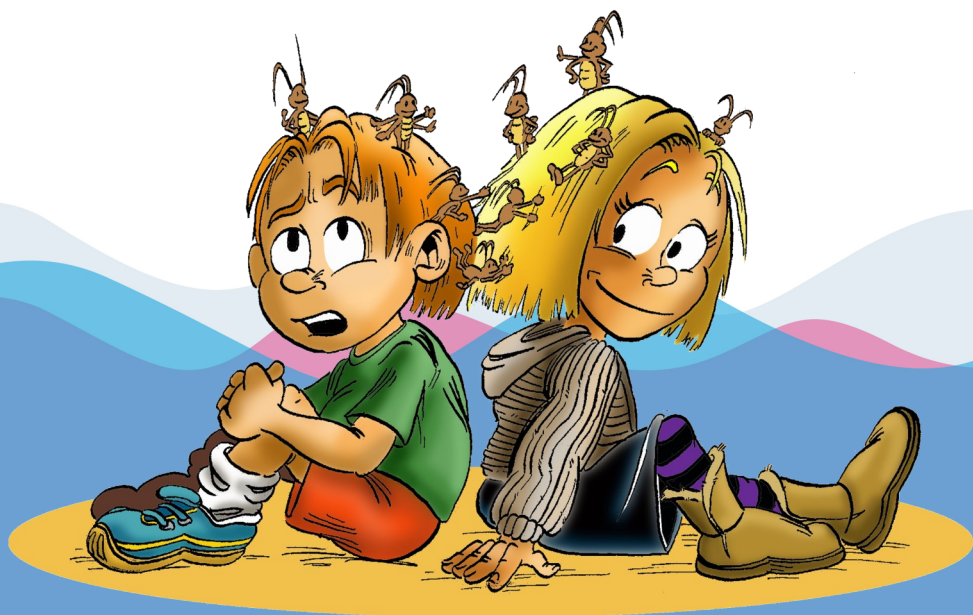


# PRACTICAL GUIDE TO PREVENT AND ERADICATE PEDICULOSIS AT SCHOOL



**Edited by ACISE -*Associació Catalana d'Infermeria i Salut Escolar*-, a non-profit organization.**

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## INTRODUCTION

This guide is addressed to health professionals, heads of the educational centres, teachers and parents.

The main objective of this guide is to clarify doubts and share basic knowledge about what **Pediculosis** or **Lice infestation** is, in order to prevent and treat this condition facing it with normality and trying to diminish the stigma related to this pathology.



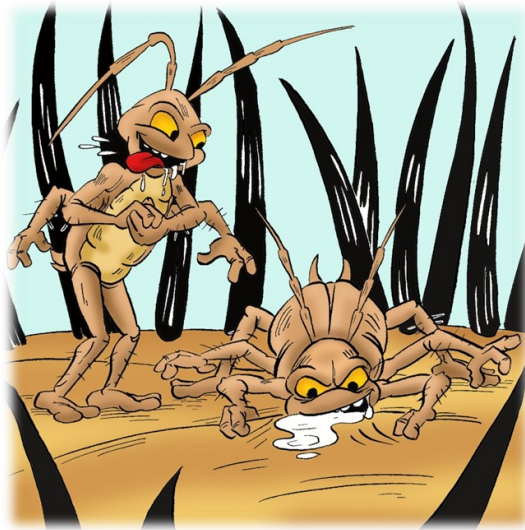
## WHAT IS PEDICULOSIS?

Is the infestation by the insect *Pediculus Humanus Capitis*, popularly known as “louse”. The eggs laid on the scalp are called **nits**.

Normally, the infestation is limited to the head but, in some severe cases, this condition might affect eyebrows and eyelashes.

The main symptom of lice presence is the intense and persisting pruritus on the head, due to an allergic reaction produced by the saliva injected when lice bite the scalp.

The head areas where pruritus is more accentuated are behind the ears and on the back of the neck.



## HOW ARE HEAD LICE (*Pediculus Humanus Capitis*)?

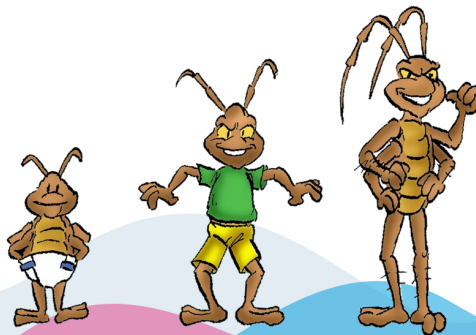
- They are exclusive human parasites that live on hair.
- Lice are **ectoparasites** (they feed on human blood sucked from the scalp).
- They are visible. They have an average size of 2mm (males) and 3mm (females).
- They are oviparous (lay eggs).
- Their colour varies according to their stage of development; goes from a pallid white-greyish (nits) to a darker grey-brownish colour (adult louse).
- Nits are the “babies” of lice. Small eggs attached on the scalp, which in about 7-10 days will turn into lice.

## THE DIFFERENT TYPES OF PEDICULOSIS

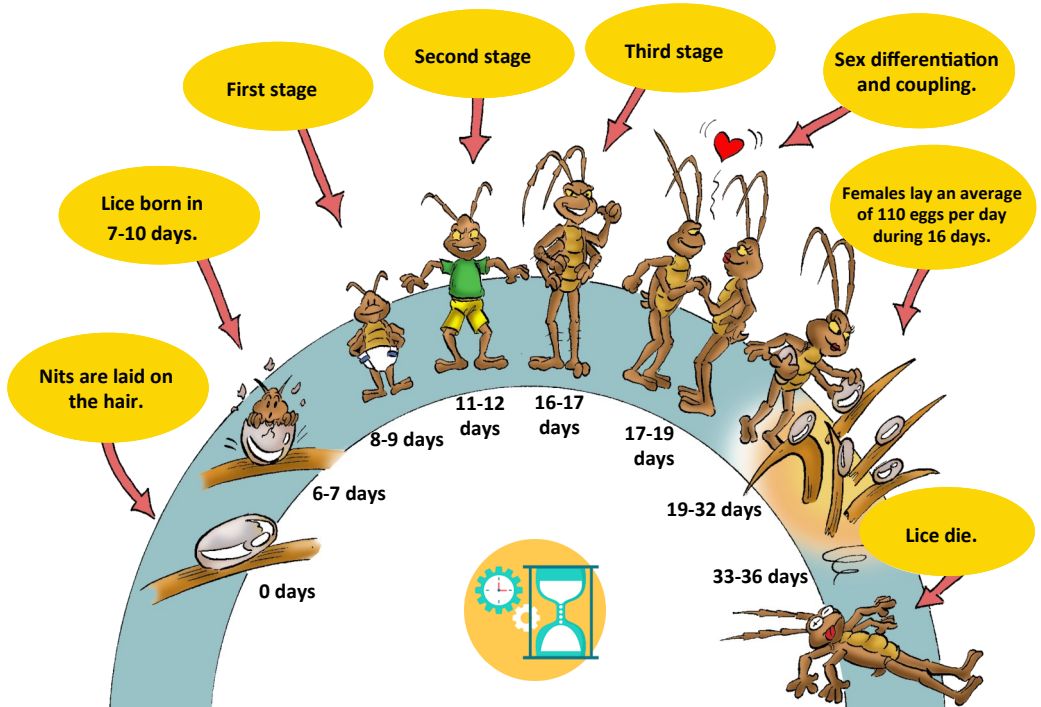
**Head lice (*Pediculus Humanus Capitis*):** an exclusive head condition. Not related to dirtiness nor bad hygiene habits.

**Body lice (*Pediculus Humanus Corporis*):** a body condition. Related to dirtiness and bad hygiene (it's frequent among homeless and during war), they live on clothes and they can transmit diseases such as typhus.

**Pubic lice (*Phthirus pubis*):** mainly transmitted during sexual relations and it is related to bad hygiene habits.



# LICE LIFE CYCLE



Head lice live for about a month (33-35 days approximately). Reproduction happens exclusively on the human head (outside they can not live more than 24 hrs. due to the lack of temperature and food).

Female lice lay between 4 to 8 eggs per day, 150-200 eggs during their entire life cycle.

Nits are attached on the scalp; the farther they are from the base of the head, the faster they age and die.

## LICE STAGES

**Eggs or nits (6-7 days):** these are attached on the scalp. Only about 60% of them become adult lice.

**Nymphs (9-10 days):** these are newly hatched lice. They are smaller than adult lice and are visible to the naked eye. They undergo three stages until becoming adult lice and being able to reproduce.

**Adult lice (15-16 days):** female lice lay eggs daily. To ensure eggs' attachment on the scalp and hair, females secrete a viscous and insoluble substance.

Lice adapt exclusively to human hair because they find the perfect conditions to satisfy their needs:

- **temperature**
- **regular humidity**
- **protection**
- **unlimited access to food**
- **access to their couple**
- **means of reproductive support**
- **absence of predators**



Lice that get out of the host dragged or by their own initiative, are exposed to death. If a louse doesn't find a new host in a short period of time (6 to 48 hrs.), will die as a result of the lack of food and the changes of the environment (humidity and temperature).

Temperatures below 0° C and above 40° C are lethal to them.

## LICE TRANSMISSION

Contrary to what we think, lice **don't fly**. They move fast and have a great ability to grab and crawl the hair until reaching the scalp of a new host.

The most common way of transmission is the **direct head-to-head (hair-to-hair) contact**. Only a small percentage of lice transmission is related to the passive interexchange of clothing or objects that imply a direct and immediate contact with the head.



## HOW ARE LICE TRANSMITTED?

- **Head-to-head contact:** most common way of transmission.
- **Sharing belongings:** probable but less frequent (combs, scarfs, handkerchiefs, wigs, caps, hairpins, headbands...)
- **Indirect contact with objects and surfaces:** is the least frequent (clothing, bedclothes, seats, cushions, towels, stuffed animals...)
- **Through the environment:** rare and exceptional means of transmission (grass, sand, water ...; lice get into a dormant state for about 2 hrs. in water).
- **Through pets:** there is no transmission related.



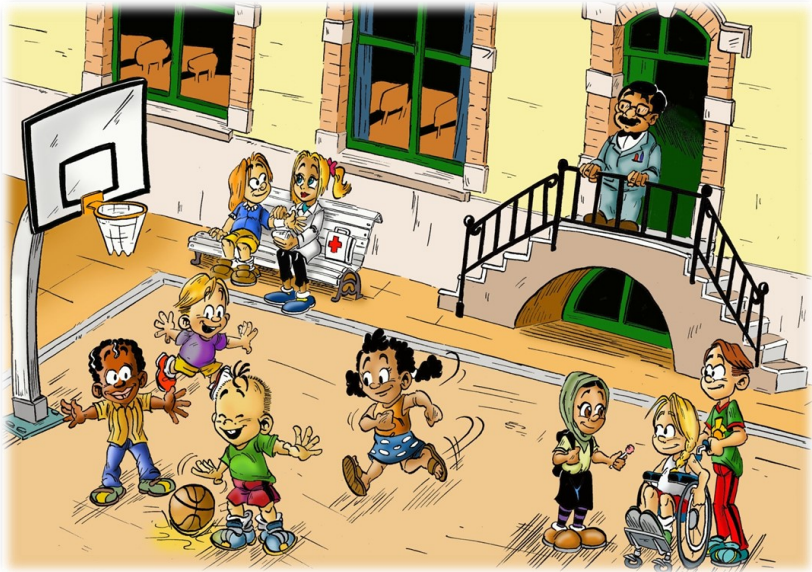
## WHO CAN BE AFFECTED BY PEDICULOSIS?

Anyone can suffer from Pediculosis but, the population in a higher risk of contagion are students, from early childhood years up to adolescence.

## HOW TO PREVENT LICE INFECTION

The best method to eradicate lice is the constant revision and the use of lice combs (regular or electric combs) on children and adolescents' hair aged between 3 to 14 years-old.

Chemical prevention (repellent spray) allows us to prevent the contagion when an infection is detected in one of the most familiar environments (at school or home).

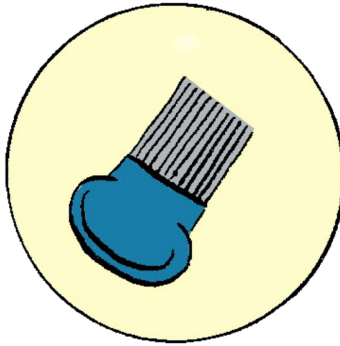


## STEPS FOR LICE INSPECTION AND REMOVAL

- Deep hair and scalp revision (hair by hair), using a lice comb.
- Give special attention to the areas behind the ears and on the back of the neck. These are the most common places to find lice because these are the warmest areas of the head.
- Have a good source of light. Sometimes it will be necessary to use a magnifying glass; ensure that the child is relaxed and still, in order to work well.
- The person to be revised has to be comfortably seated at an optimal height, allowing us to visualize the hair as best as possible.
- Once the revision is finished, shake the comb vigorously in the sink or on a paper towel, to see if there is any louse in it.
- Clean the lice comb under the tap with hot water.

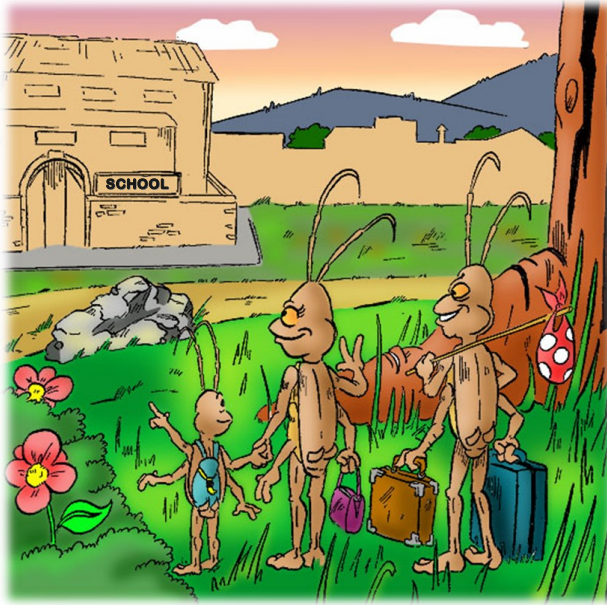


## GENERAL INFORMATION ABOUT LICE COMBS



- There are different models of lice combs in the market.
- Interdental spaces should not exceed 0.2 mm (bigger spaces might allow nits to pass through).
- Metal lice combs are the most recommended, due to their rigidity and small interdental space.
- Plastic combs can be deformed by use. They are useful to get rid of nymphs and adult lice, but they could let nits escape.
- Nowadays, there are “electric lice combs” being sold. These work by giving a small electric shock that kills lice. These should be used on dry and well combed hair. It is effective against adult lice and nymphs, but it is not reliable for nit removal.

## PEDICULOSIS AT SCHOOL



- It is estimated that approximately 15% of the school population could be affected by Pediculosis.
- It is common that small epidemics occur during the beginning of the school year, during school trips or summer camps.
- Lice can affect anyone, being children and adolescents the population in a higher risk of contagion; there is a higher prevalence on girls.
- Cultural and socioeconomic differences do not influence on the risk of contagion. All social classes can suffer Pediculosis.
- This type of infestation **is not related to dirtiness**.

## HEAD LICE AT SCHOOL

### General preventive actions aimed at breaking the transmission process

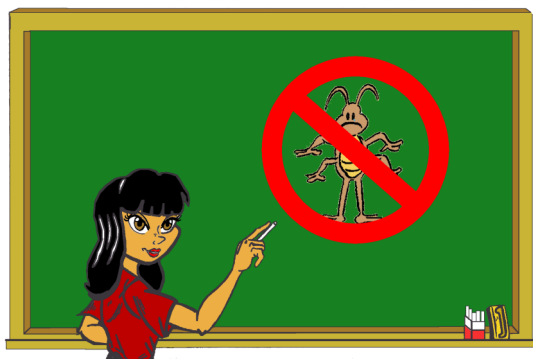
- Explain children how important is to avoid exchanging clothes or personal items that are placed on the head or that are considered objects of transmission risk.
- Teachers must take into account those recreational activities that may involve an exchange of risk objects.
- Children should not be allowed to share sleeping bags, cushions, hats ... when camping and during school trips.
- Promote among families the preventive revision at home, as part of the children's hygiene habits.
- Carry out health and education awareness campaigns addressed to parents, tutors and educators; periodically and repetitively throughout each school year.



## HEAD LICE AT SCHOOL

### Actions before one or several contagion cases detected at school or other educational centres

- If teachers detect the presence of head lice, they should notify confidentially the family of the child infested, so they can start the treatment as soon as possible.
- As a way of prevention, the rest of the families will also be notified about the presence of head lice in the class, so they could revise their children's heads and in case of lice presence, start a treatment.
- This communication must be delivered immediately, by means of a written note and accompanied with a treatment guide.
- Insist parents on the general prevention message, during the infestation and reinforce it periodically along the school year.
- A follow-up is needed after the treatment. Monitor that all related symptoms have completely disappeared, as sometimes the itching persists after lice removal.



## HEAD LICE AT SCHOOL

### Actions at school in situations of prolonged Pediculosis or massive contagion

When the infestation persists and acquires intensity, it indicates that the focus of contagion is not under control.

In these cases it is recommended to carry out a generalized treatment on all students from an specific classroom or classrooms at school; simultaneously and with the same product, following these steps:

1. Inform parents about the application of this generalized treatment; notify about the day in which the treatment begins and the subsequent days in which the following revisions will be taking place.
2. Give an informative talk about Pediculosis; it should be given by a nurse.
3. The nurse will revise children's heads in the school nurse's room, or in a suitable space with enough light.
4. For head revision, the nurse will have at hand a magnifying glass, single-use gloves, **Sterillum® antiseptic** or alcohol and a paper bin.
5. The revision procedure will be repeated for 4 weeks (following lice life cycle).
6. The nurse will carry out these revisions on the same day of the week, preferably the last day of school during each week.
7. The detection and successive controls will be carried out on a regular basis to all members of the class or classes, individually and confidentially.
8. The nurse will keep a record of all the children who have been checked during the group treatment period.

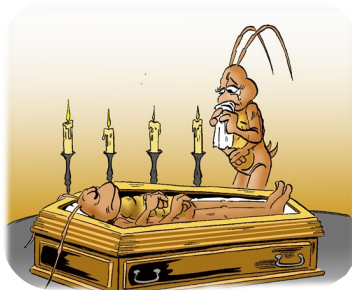
## HEAD LICE AT SCHOOL

### Actions at school in situations of prolonged Pediculosis or massive contagion

9. The teacher or tutor responsible of each class will be notified about the detected cases and later, in a confidential note, parents will be informed and receive an information guide, so they can initiate the removal or prevention treatment.
10. In the last revision, students in whom Pediculosis is persistent, will be referred to a health centre with the aim of removing head lice totally.
11. Students can go back to school once the treatment is finished.
12. Regular prevention follow-ups would be necessary.

Once the infestation is detected in a specific area of the school, for example in one of the classes, it is necessary to take extreme cleanliness measures: vacuuming the floor, carpets, upholstery, covers or stuffed toys that may have been in contact with infested people .

It is necessary to wash or dry clothes and objects made of washable materials, at a high temperature program (above 40° C).





## HEAD LICE AT HOME

- Set hair revision on children and adolescents as a personal hygiene routine.
- If a child has lice, it is necessary to check the head of each family member, and if necessary, apply the treatment.
- Promote the individual use of combs and other personal hygiene items that are in contact with the head.
- Do not share these accessories with other family members, especially those at the highest risk of contagion stage.
- Keep a good personal hair hygiene (clean, well combed and frizz-free).
- Keep children's hair tied back at school.



## GENERAL PREVENTION AND TREATMENT PROCESS

- Systematic lice and nits removal from hair.
- Use of specialized products to treat Pediculosis.
- Do not forget the general measures to avoid re-infestation.
- Prevention and monitoring of new contagions.

## DIRECT PEDICULOSIS TREATMENT METHODS

Lice treatments **should only be used on infested people's hair** and specifically with the aim of killing lice or nits.

Nowadays, there are **different products** for head lice and nits removal. It is recommended to apply the most appropriate for each case and follow the pharmaceutical application instructions.

## PEDICULICIDES, REPELLENTS & COMMERCIALIZED SUBSTANCES

- **Traditional remedies in disuse:** cut hair, use vinegar or alcohol.
- **Treatment of first choice:** *Permethrin* at 1 or 1.5% for recurrent infestations.
- **Traditional insecticides:** pyrethrums and/or organophosphates.
- **Asphyxiating agents:** last generation oily substances such as *Squalane*; vaselines and silicones.
- **Natural insecticides:** quassin (extract of *Quassia amara*), allium with acetic acid and other plant extracts.
- **Substances for oral use:** antiparasitic (Ivermectin), bactericidal (Trimethoprim-sulfamethoxazole). [\\* Requires medical prescription.](#)
- **Repellents:** extracts from plants (tea tree, lavender, citronella...) and synthetics (IR3535-ethyl butylacetylaminopropionate).
- **Post treatments:** shampoos, conditioners and hair detanglers. Extract of malt or aloe Vera.



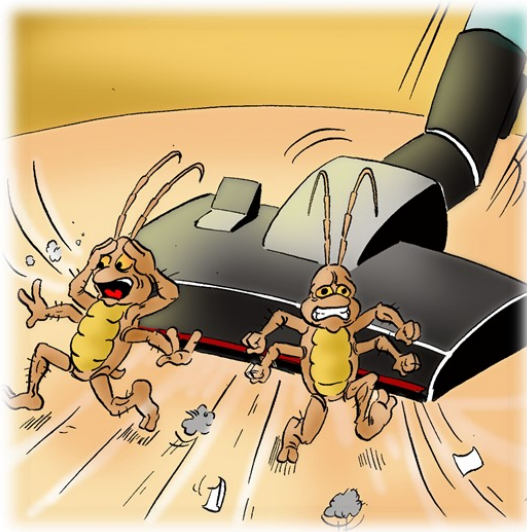
## GENERAL RECOMMENDATIONS FOR TREATMENTS

- Permethrin should be in contact with head lice between 10 and 30 minutes, to eradicate them during the following 8 hours.
- If we do a treatment with shampoo, the treatment application should be repeated 2 or 3 times, with intervals of three days to ensure nit removal.
- There are also **new generation active ingredients** such as Squalane, which comes from olive oil and/or sugarcane. It eliminates 100% of head lice in a 2-minute application and has a high efficiency on nit elimination.
- After applying the treatment for lice removal, it is suggested to use vinegar or any product with acetic acid to detach nits from the scalp and hair, since it favours to remove them more easily with the lice comb.
- Comb hair deeply .
- Clean the lice comb with alcohol or soak it into hot water for 7 minutes.



## OTHER BASIC RECOMMENDATIONS

- Wash hair with **warm water**; hot water will increase the itching sensation.
- Sterilize accessories and other hair utensils.
- To avoid lice transmission, always carry out the treatment in the bathroom.
- All towels and bedclothes should be washed with a 60° C program.
- After washing, it is recommended to use the dryer or the iron.
- Non-washable items should be set apart inside a plastic bag for a few days.
- Vacuum and clean deeply the bedroom.



\* It is recommended to follow these tips for 48 hours, since it is the time lice take before dying outside the host

## OTHER BASIC RECOMMENDATIONS

**Once the time of action of the chosen product has elapsed, we must:**

- Rinse hair with plenty of water. \*In case of applying products with silicones or oils, apply shampoo directly on the hair after the treatment, without wetting or rinsing it previously (thus silicones/oils repel water). Rub and rinse with plenty of water. If necessary, repeat the process to ensure that the entire product has been removed.
- Add one part of vinegar for every two of water (it will help to detach nits more easily from the hair).
- Comb the hair with a lice comb.
- Do not cover the head with towels or similar clothes, as they absorb the product.
- Use a disposable shower cap while the product works.
- Air dry the hair. Do not use a dryer (this decreases the insecticidal effect).
- Repeat the treatment in 7 or 8 days (if it has not been effective enough).
- After three applications of pediculicide carried out correctly, if lice and nits persist, you should consult the paediatrician to request a new method or a new product for lice removal.
- If you have any doubt, consult medical, nursing or pharmaceutical professionals.



## LICE STILL HERE, WHY?

- Inaccurate treatment application. The pediculicide has not been in contact with the insect long enough.
- Mistaken second application of the product (no product kills 100% of the nits, so it is necessary to make a second application of the product after 7-10 days).

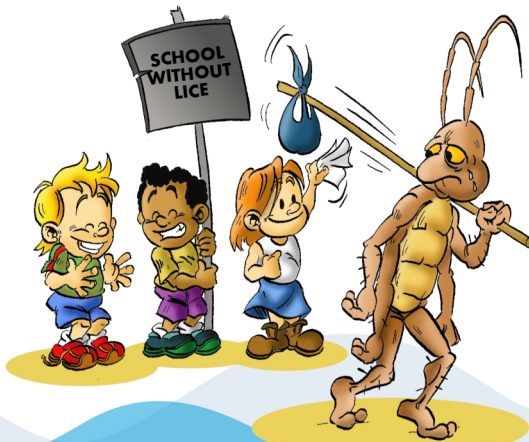
## LICE INFESTATION CONTINUES, WHY?

- Reinfection by contagion (by a relative, friend or a child at school). In this case lice are usually adults (larger nymphs).
- Resistance to the product used.

**\* Remember that products for lice and nits elimination are not effective for prevention. To prevent lice contagion there are other specific options.**

## WHEN CAN CHILDREN GO BACK TO SCHOOL?

- Once the treatment has been applied correctly and we are sure that there are no lice or nits alive, children can reincorporate to school.
- It is important that parents notify the school if their child has had lice, so that other children could be checked to avoid new infections.



This prevention and lice removal guide has been edited by the Catalan Association of Health and School Nursing (ACISE, *Associació Catalana d'Infermeria i Salut Escolar*), with the support of Ferrer and OTC lice treatments.



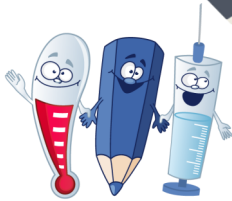
HEAD LICE AT SCHOOL?

NO, THANKS!

WE ARE ALL RESPONSIBLE!



Let's collaborate to avoid head lice at school!



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900 101 834

\*Use OTC lice treatment safely. Always read the label and the instructions of the product before using it.

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