# SUB UNIT 1:

## Activity 1.9

So far, you needed some chemical knowledge to be a successful household detective. Now we will demand some biology as well! Why? Because you shall be looking for bacteria and other microorganisms or the risk of microbial growth which you do not want in your household!

Of course, not all bacteria are unwanted. You have plenty of them on your skin, in your mouth or in your digestion system. They actually help you, but there are also bacteria that might cause illnesses; and those have to be avoided, of course!

Think again in your detective team: Where would you expect risks for the growth of unwanted bacteria or mould in your household?

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As you cannot see bacteria, you need to set up an experiment again. You can catch bacteria and let them grow in a safe environment when you use agar plates. Talk to your biology teacher about how to prepare them, how to use them in a safe way for yourself and others and plan your experiment – become a bacteria detective this time!

You could perform the following experiment:

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| Experiment 1: Finding bacteria6**Apparatus and chemicals*** 6 petri dishes (with lids) with nutrient agar for usage as contact plates or special contact plates
* overhead marker
* tape (eg. Tesa® film)
* cotton swabs (sterile, new box), sterile moistening liquid (e.g. water)
* hand disinfectant

**Safety**Observe all safety measures regarding the handling of bacteria! Wear your safety goggles! After sealing the petri dishes, do not open them again!**Procedure*** Touch the surfaces where you expect bacteria with the nutrient agar in a petri dish or wipe the surface with a moistened cotton swab taken from a newly opened box. Then wipe the cotton swab in zig-zag lines across the agar. Seal the contact plates/ petri dishes immediately with tape. Note on each plate where the sample is from and incubate them for 48 hours at 37°C or 5-7 days at room temperature.
* After incubation, compare the different plates.
* Describe grown colonies with magnifying lens, if available.
* You may examine the bacteria under a microscope.

Note here which surface you tested along with your observation after incubation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**Disposal*** Contact plates should be sterilized / autoclaved.
* All material that has had contact with bacteria should be disinfected.

6 Source (adapted from):Wagner, Günter und Blank-Rothenburg, Helga (2001). Bei welcher Temperatur wird Wäsche hygienisch sauber - Wirksamkeit verschiedener Haushaltsreiniger auf ihre antibakterielle Wirkung. Naturwissenschaften im Unterricht - Chemie, 12(63), 51-52. |