

## Mouthwash – Does alcohol really make a difference?

### Learning Outcomes of Module

On completion of this module students should be able to:

- Investigate the structure of the mouth.
- Identify the functions of the various parts of the mouth.
- Design and conduct an experiment to examine whether alcohol based mouthwash is better at killing bacteria than non alcohol based mouthwash.
- Analyse the results of the experiment and suggest some reasons for these results.
- Present their findings to fellow students and teachers of the school in a short presentation.

### Curriculum content:

- Physical digestion
- Microbiology (growing cultures on agar plates)

### Activities

Students performed a number of inquiry based activities as part of the module. These activities included:

- Researching the internet on the structure of the mouth
- Devising and implementing their own experiment to decide if non alcohol based mouthwash is better at killing bacteria than alcohol based mouthwash.
- Analysing results from their experiment
- Presenting their research to the class in a PowerPoint presentation



### Activities

Each activity was designed to last one double class (80 minutes).

At the beginning of each activity students were given a task sheet assisting them on what they need to do to complete the task successfully.

They kept a record of each task in a folder and this was submitted at the end of the module for assessment by the teacher.

### Assessment

For assessment students and teachers contributed to the grade that each student received.

Student grades of the module were based on a number of items including:

- Student self assessment form
- Teacher evaluation form
- Small test based on module content
- Student presentation on their research of whether alcohol based mouthwash is better at killing bacteria than non alcohol based mouthwash.

### Results



Student opinion was divided amongst the class as results from the experiment varied greatly.

From the results in the picture above, the students in this group were able to conclude that the non alcohol based mouthwash was better at killing bacteria than the alcohol based mouthwash as there were a higher percentage of microorganisms killed after a student rinsed with the non alcohol mouthwash.



### Conclusions

Students enjoyed taking part in this module. One student mentioned that the module made 'me feel smarter cause I had to make up my own experiment'.

All students concluded that both types of mouthwash kills bacteria.

### References

- [www.slss.ie](http://www.slss.ie)
- <http://tami-port.suite101.com/prokaryotes-class-experiment-collecting-data-a76608>