

## Trondheim modernizes learning in schools using Google's cloud-based tools.

### Challenge

In 2014, Trondheim realized that their educational technology had to be updated in order to keep up with the pace of digital innovation.

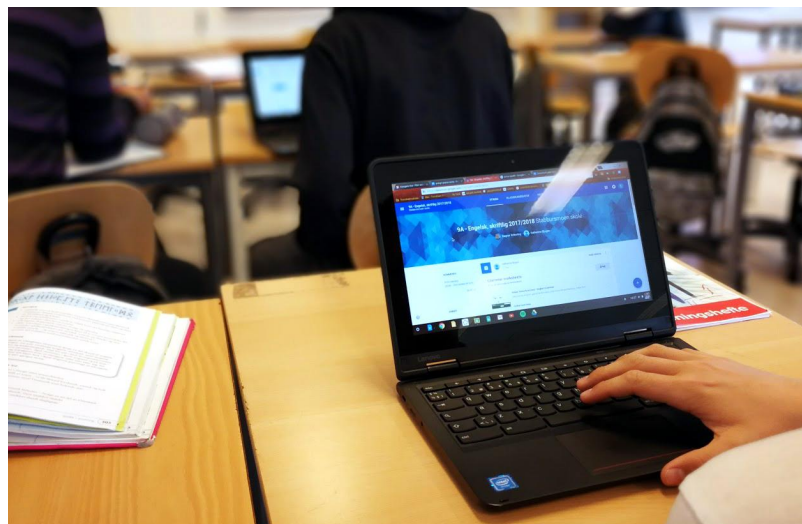
They had the weakest student-to-computer ratio of all Norway's larger municipalities, and many schools struggled with outdated networks, unreliable software, and slow devices that negatively impacted classroom efficiency. This dissatisfaction from teachers, students, parents, and politicians led to a [new initiative aimed at solving these issues: "ICT in Trondheim schools."](#)

### Solution

To kick off the project, an examination of the circumstances and requirements began in 2015. Schools were assessed and interviewed and examples were taken from other municipalities with more effective technological solutions. [The project report concluded that it was essential for Trondheim to adopt cloud-based software solutions in order to meet the future digital needs of its schools.](#)

Trondheim launched a pilot program to find out which cloud platforms would deliver best on the schools' needs and a statewide upgrade of all schools' network capacities and digital infrastructures in parallel.

[Over the course of four months, two different solutions were tested at a lower secondary school in Trondheim.](#)



### Trondheim at a glance

**Population:** 190,000 (3rd highest in Norway)

**Educational Landscape:**

- 54 primary and lower secondary schools.
- 21,000 students and 1,800 teachers.
- 10 year compulsory education for everyone aged between 6 - 16 years.
- Home of Norway's largest university, Norwegian University of Science and Technology (NTNU)

Approximately 200 students in Grade 8 and Grade 10 used Chromebooks with G Suite instead of their older, traditional PCs with a cloud-based office suite software from a competitor. [Each student was provided with their own computer for schoolwork and homework, with some even testing the use of tablets with cloud solutions.](#)

## Key Takeaways

Trondheim found that the Chromebooks provided a faster and more stable experience for the students, and that Google's productivity tools worked better than the competitor's to meet the needs of the school. As a result, the municipality made it a goal to replace all PCs with Chromebooks, whilst increasing the student-to-computer ratio to 1:1 - so that every student at all lower secondary schools would have their own device by 2019. All of the Trondheim schools were also assigned designated Google "guides"—members of the school staff trained to implement the new tools in the school environment, and given the important task of passing on the knowledge to their respective colleagues.

Trondheim is considered the pioneer for Google's educational offering in Norway, with several major IT initiatives and reorganizations running simultaneously. The Google solutions worked well, they were easy to implement and the on-boarding process to students, teachers and parents was quick and efficient.

The Principal at the combined primary and lower secondary school in Trondheim, emphasizes the advantage of everyone being able to communicate in real time, as well as the ability to easily share content across Google platforms wherever they are:



*Before, teachers would have to walk around the classroom in order to read and give oral feedback on the students' work, whereas now, if someone needs help or has any questions, the teacher can simply comment directly in their document then and there. This saves us a lot of time, and we get more done in the classroom. Also, marking assignments used to take days... Now, everything can be done right away while the material is fresh in memory, and this has an exceedingly positive effect on learning. It's really quite ingenious."*

Stabbursmoen School has experienced increased levels of efficiency as a result of using Google Classroom and Google Drive to share weekly plans, course material, videos, and homework for the various grades at the school. Teachers place all their lesson plans in shared folders for both students and staff to access, which is mutually beneficial.

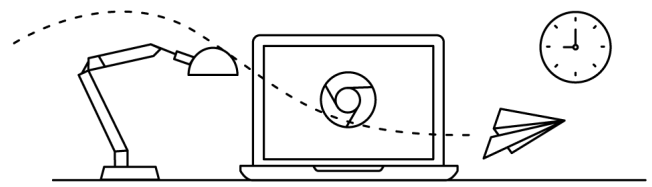
## Benefits

Since introducing these Google solutions to the schools in Trondheim, the feedback has been extremely positive.

**Nina Lykke, principal at Stabbursmoen School in Trondheim explains:**



*Everything has improved greatly with the Google tools in place.... The ubiquitous problem of technical issues with PCs is gone. Now, students can simply boot up their Chromebook in seconds, go online instantly, and start working hassle-free."*



All those involved have a complete overview of their tasks and available resources, whether they're at school, at home, or when travelling—and even on mobile.

Stabbursmoen has also received positive feedback from parents who are very pleased with how the cloud-based tools have made school life easier for both their kids and themselves. Many are pleased that they no longer need to purchase expensive software at home in order for their kids to be able to do their homework and Google's automatic updates are also an advantage over the traditional systems.

*"When a company like Google is behind the solutions, there are constant improvements keeping levels of efficiency increasing. Google products simply never become outdated...new ways of doing things are constantly being developed. On top of this, we don't even notice when updates take place due to automatic updates that happen within the software and devices, and we are always seeing new features introduced," says Ragnar Attestog, a Grade 9 teacher and responsible for IT at Stabbursmoen.*

## A new and improved school life for students

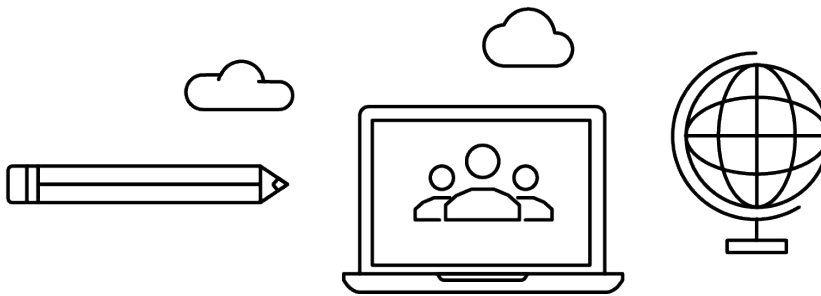
Trondheim students believe their schooling has improved with Google:

“*Logging on is a lot faster now. I can quickly go to Google Docs and start typing, and everything is easy to find again later. Things feel more fair now too. Everybody has access to the same tools, and everyone can accomplish the same at school and at home. Since we can bring our Chromebooks home with us, as long as it's fully charged the next day, it has become easier to do homework as well. Before, our parents had to have the 'right' kind of computer and software at home, which wasn't always possible for every student,”* says Eskil, a ninth grader at Stabbursmoen.

During lessons, the students benefit from using different web apps on their Chromebooks. In math lessons, they use Google Sheets and the geometry application GeoGebra, while tools like Google Slides, Google Drive, Google Docs, and Google Classroom are widely used in all other subjects.

The web-based learning ecosystem also makes room for creativity. For example in music class, the students learned to how to read musical notes using a piano app they had found in the Chrome Web Store. This enabled them to sit at the Chromebook and practice and learn—each with their own digital instruments.

“*You can get everything done when you have a Chromebook”*, says Eskil.



The students using these tools represent a new generation of learners that have stronger digital skills and higher expectations of the technology on offer in school and everyday life. The days of old desktop computers in the classroom have long passed.

“*Overall, we are very pleased that Trondheim chose to go with Google's solutions in schools, and I have the impression that the vast majority of students, teachers, and parents feel like the implementation has been a successful project”*, says Ragnar Attestog.