




# Birkerød School



Rudersdal Municipality

A photograph showing a male teacher in a white t-shirt leaning over a desk to assist two young students. The student on the left is a boy with short brown hair wearing an orange t-shirt, and the student on the right is a girl with blonde hair wearing a maroon and blue t-shirt. They are all looking at a tablet computer held by the boy. The background shows a classroom setting with windows and a desk.

**At Birkerød School we want to develop digital tools and processes that not only support academic goals but also 21st Century Skills, Learner Qualities and the school's values which aim toward preparing our students for their future.**

**Life,  
Learning and  
Innovation**



# Birkerød School School of the Future



## Distinguished School

Recognised by Apple as a distinguished school for continuous innovation in learning, teaching, and the school environment.

### Welcome to Birkerød School

In the middle of Birkerød - part of the Municipality of Rudersdal, Birkerød School is a new and modern school. In 2012, two schools became one. The first year, we had students in two parts of town but in 2013, we moved together in one newly expanded and renovated school. This amalgamation of two schools into one has created an innovative culture and our school aims to be up front in regards to exciting teaching and modern school design.

“Life, learning and innovation” is our cornerstone - We are a School of the Future.

### The Physical Learning Environment

Birkerød School houses about 700 students and 90 employees. The buildings are full of light and the common learning areas are visible from every classroom. This gives a transparent atmosphere which supports our perspective and knowledge of learning environments. The goal is that teachers and students are conscious of effective learning strategies, including their choice of learning environment.



# Vision



Birkerød School will be known for its students who are as clever as each one can achieve to be and who are full of life, sociable, accepting of differences, harmonious and democratic.



Our goal in using iPad in our digital approach is to change and improve learning processes. The aim is better learning for each student.

We use iPad to give innovative possibilities which we believe would not have existed without technology.

Our understanding of learning and awareness of own learning skills is central in creating new skills and knowledge.

A technological mindset gives opportunities to create coherence between our work/tasks and technology which can in turn create totally new solutions.

## Birkerød School's Vision

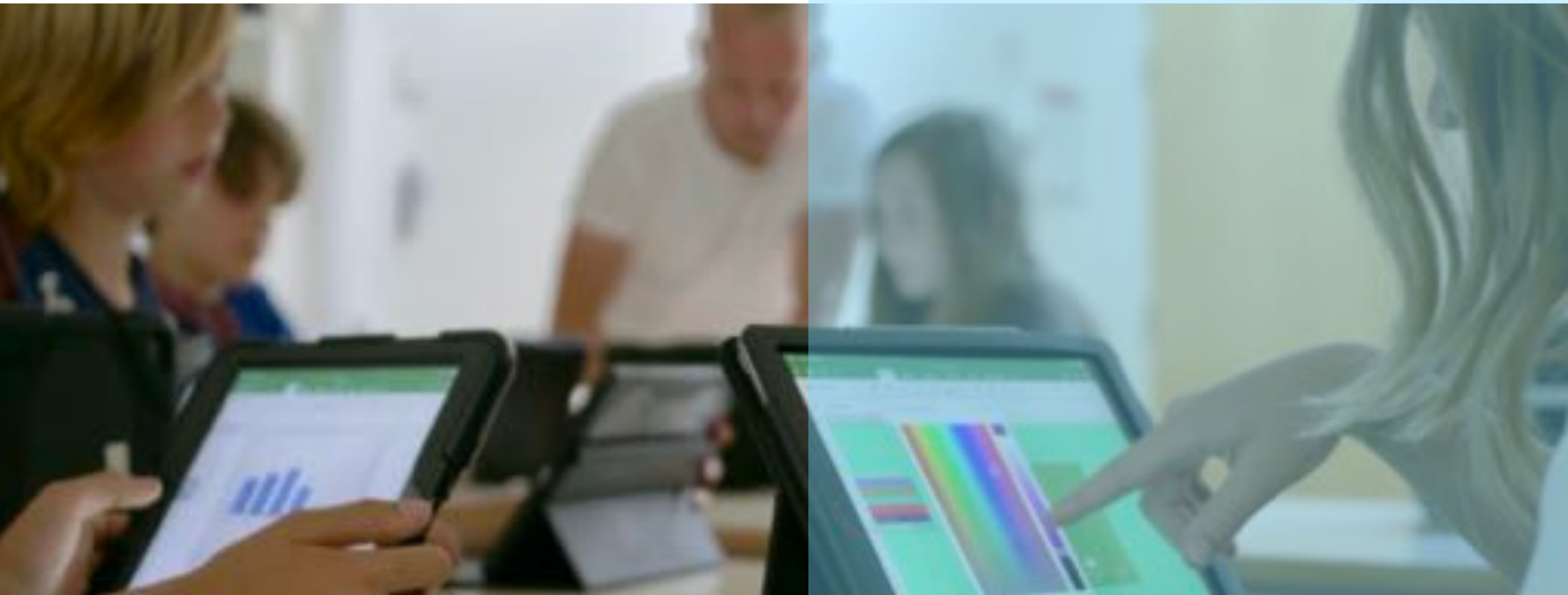
Maksimum learning and development for all the children that come to Birkerød School.



Students in front the vision of Birkerød School

## Digital strategy

The digital approach is a natural choice for all at Birkerød School. The last five years, the Municipality of Rudersdal has worked with a 1:1 iPad strategy for students and employees in the municipality's 12 schools. This means that all students in 3rd to 8th Year classes have their own iPad and that all other students have access to class sets of iPad. All teachers have an iPad and a MacBook Air. For Birkerød School, iPads have been a lever not only for developing a digital culture but also an enhancer of the understanding of technology as a tool for structuring and organising teaching.

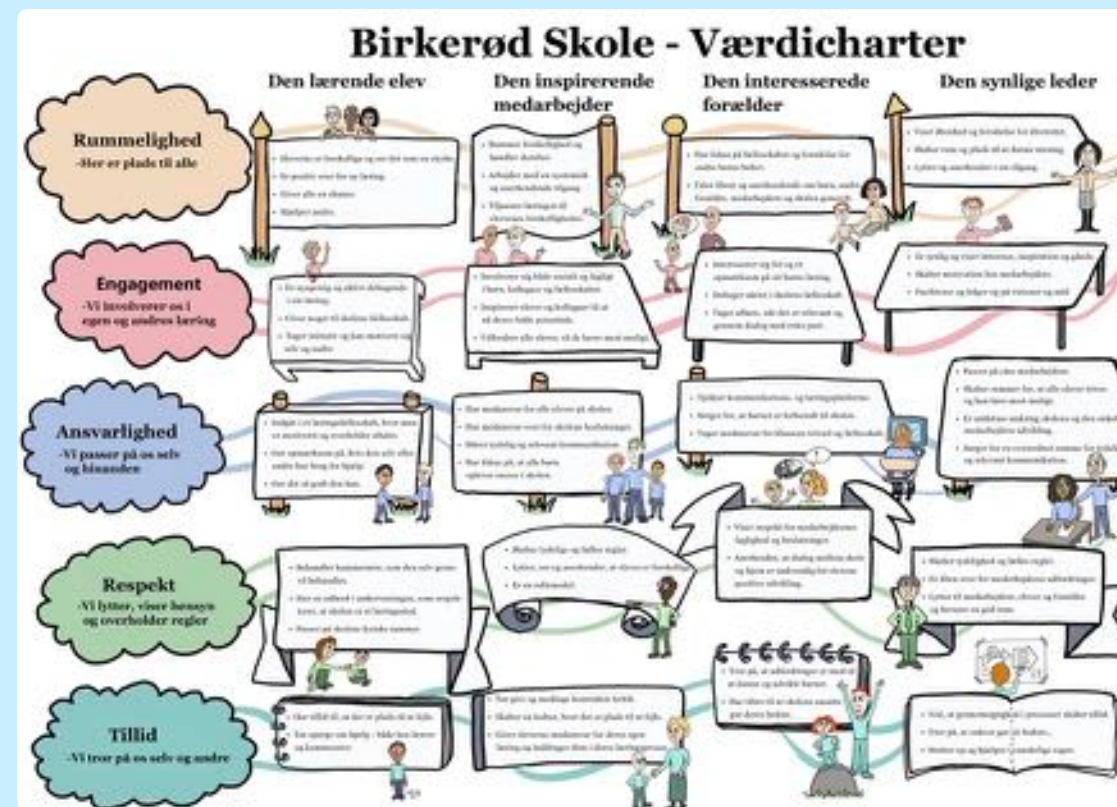


# Charter of Values

Our school's Charter of Values harmonise beliefs og expectations amongst the school's main actors – students, employees, parents and administration. Work with the Charter supports a learning-focused development culture, which is central to developing our vision.

This means that every time we set new goals for digitization for ourselves, we assess which effect they will have for our students' learning, the teachers' practice and the development of students in cooperation with their parents.

The Municipality of Rudersdal's guideposts for good learning are also parameters in our work with a digital vision.



Charter of Values at Birkerød School

Touch



## Acceptance

There is room for everyone.



## Commitment

We get involved in both our own and others' learning.



## Responsibility

We take care of ourselves and others.



## Respect

We listen to others, are considerate and follow the rules.



## Trust

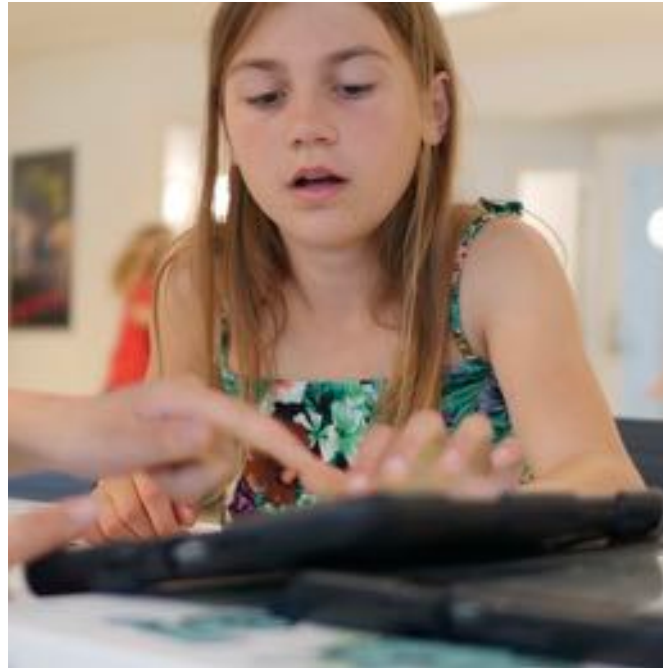
We trust ourselves and others.





## WHY

No one knows what the future holds. But we believe that the capacity to acquire, use and prioritize new knowledge, understanding one's learning processes and knowing what to do in new learning situations will be important skills in a new future. That calls for a new way of teaching and we believe that the iPad can help us achieve that new goal.



## WHAT

The digital approach must be incorporated as a lever in our work in developing our students' understanding of their learning processes. The combination of "Innovative mindset, Digital understanding and Visible Learning must strengthen our students' learning, whether it is in regards to academic knowledge, our school's set of values or future skills.



## HOW

The pipeline implementation for the use of iPad is clear for all actors. Role and behaviour are scaffolded to the smallest detail. Concrete goals, which are closely related to experience, have already implemented learning practice as a baseline. We work with a professional learning culture where capacity growth is a constant pivotal point.



# 21st Century Skills

At Birkerød School, we work with 21st. Century Skills, where we have chosen to focus on six areas, which we deem to be especially important in the future:

- Collaboration
- Digital literacy
- Problem solving and innovation
- Communication
- Knowledge construction
- Critical thinking

These areas are actively included in core teaching but we focus more intensively on some of these areas in focus weeks where one or more specific areas are further developed. An example of this is “CRAFT” which aims at “Creating Really Advanced Future Thinkers“ and concentrates on developing students’ competencies in the areas of digital literacy and competencies, problem solving, innovation and collaboration. In our teaching the iPad is a multimodale creative tool that creates opportunities for our teachers and student to work with the skills of the 21. century in a natural way.

## Collaboration

The students are working together in groups in a way where everybody contributes and are dependent on each other.

## Digital literacy

The students have knowledge of IT and use iPad to produce and to create new knowledge, which were impossible without IT.

## Problem solving and innovation

The students are working with innovative solutions to real world problems.

## Communication

The students are communicating through IT and iPad in multimodal ways to a specific audience.


## Knowledge construction

The students are constructing new knowledge and using the gained knowledge throughout the curriculum.

## Critical thinking

The students are becoming global citizens through critical thinking and analytical approach.

# Learning



**Future skills are necessary in our work with technological understanding of learning in the present and the future.**



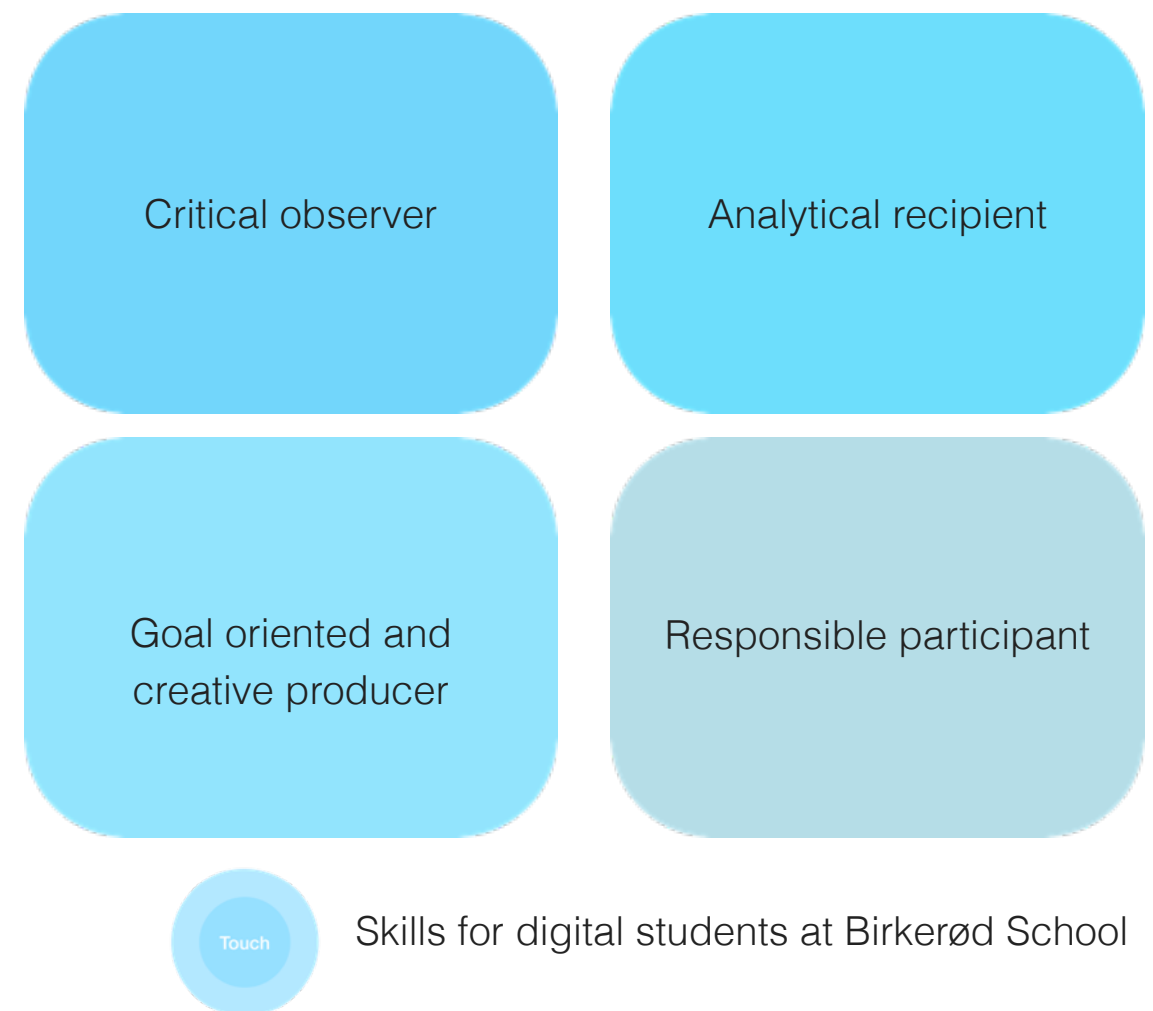
# Learning with iPad

Learning at Birkerød School are centered around mobility, access and active use for students. When students have access through their iPad to a variety of tools which give equal possibility of expression, the chance of an inclusive approach in teaching is increased.

The student are learning to become critical observers when they are surfing the internet and evolves into analytical recipients.

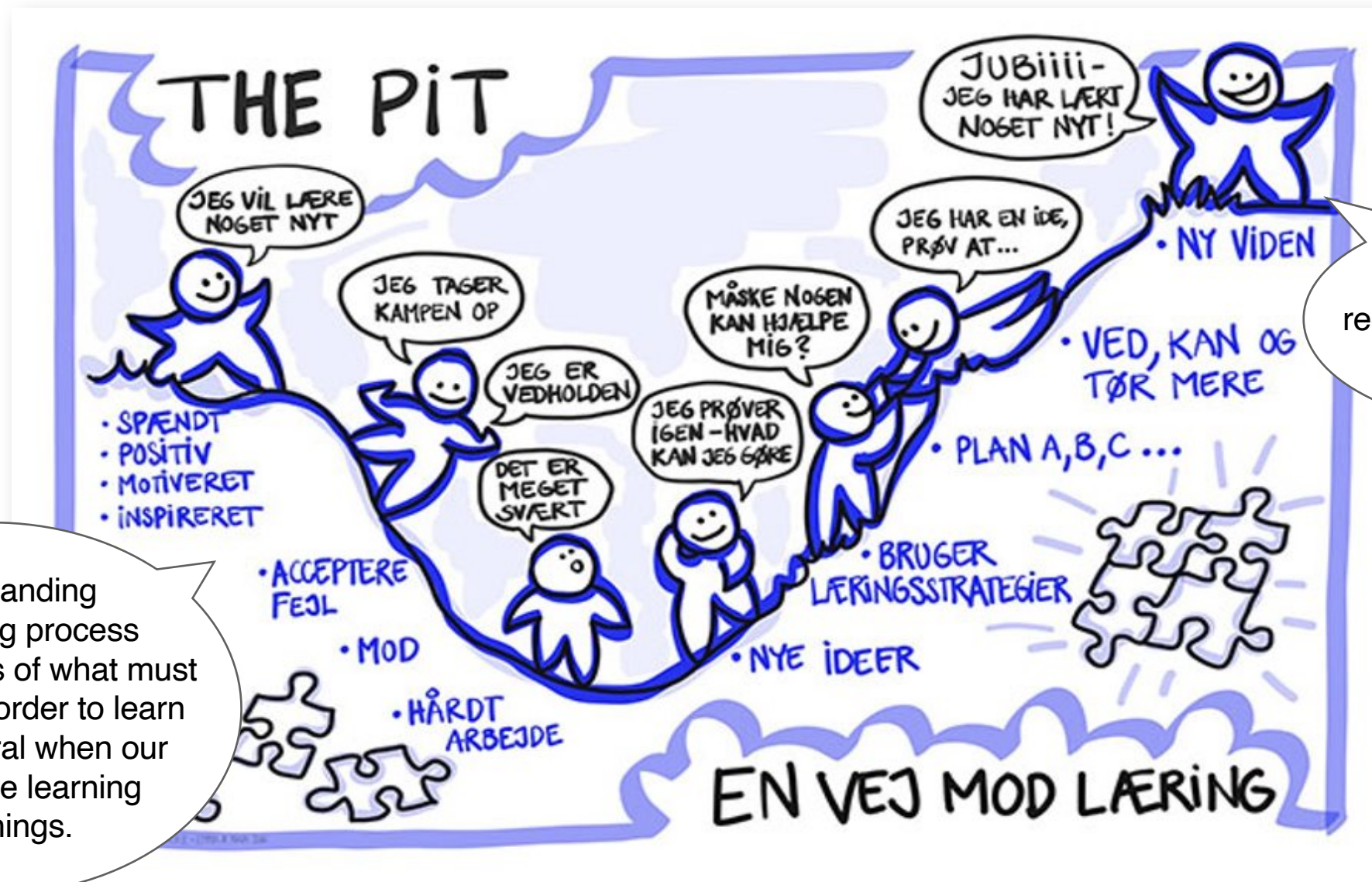
iPads fundamentally help to change learning methods in a way that makes students producers of many different types of digital products. These products span from wordprocessing to keynote presentations, films and coding. All these things create flow in Learning, where the students are responsible participants. The students use the iPad to easily and quickly gather information, create a product and present it.

The student becomes creative producer of multimodale products.



Skills for digital students at Birkerød School

# The Pit - A way to understand one's learning



Understanding our learning process and awareness of what must be present in order to learn more is central when our students are learning new things.

We give and receive efficient feedback at all levels.

Working with The Pit and Feedback is an essential part of the learning process at Birkerød School. Students know their learning goals and can explain where they are and how they get there. For us, this is a paradigm shift, as teaching and communication aren't central anymore and students' learning process moves up front. This means a significant change in the school's practice, the teacher's and the student's role and lastly the learning processes and tools we are developing together. Our goal is that digital devices such as iPads and MacBooks, can help our knowledge of learning and our digital and Technological Literacy.



Working with The Pit is an essential part of the students' learning process at Birkerød School. This means that students from an early age are familiar with the concept of The Pit. In the video we meet a student who is demonstrating his understanding of the pit. Furthermore, the student explains how the concept of The Pit gives him the tools to move on, when learning becomes difficult.

At Birkerød School, the students are working with the iPad in a number of different scenarios. The teachers and students take full advantage of the many different possibilities the iPad offers. Among the many things that are used to create a dynamic and diverse learning environment are the concept of podcasting.

**Podcast 1.1**

**Podcast 1.2**

## Differentiated learning

Year 4 teachers use iPads to create differentiated learning. Students work with different tasks in groups. Some students can choose to show their learning process in mathematical algorithms on their iPad using Explain Everything. They can record and revisit presentations as often as they want. Other students use a similar technique for equations. Some work on statistics at the same time. They obtain data they can process and analyze, choosing which type of graph will communicate their data from a spreadsheet.





## Everyone can code

Birkerød School works with Coding and other technologies. It's a question of using a playful approach where students can be competent in solving problems while using their creativity.

We use different apps and programs to code, amongst others Swift Playground, Scratch and Lego. Other apps are also used where needed.

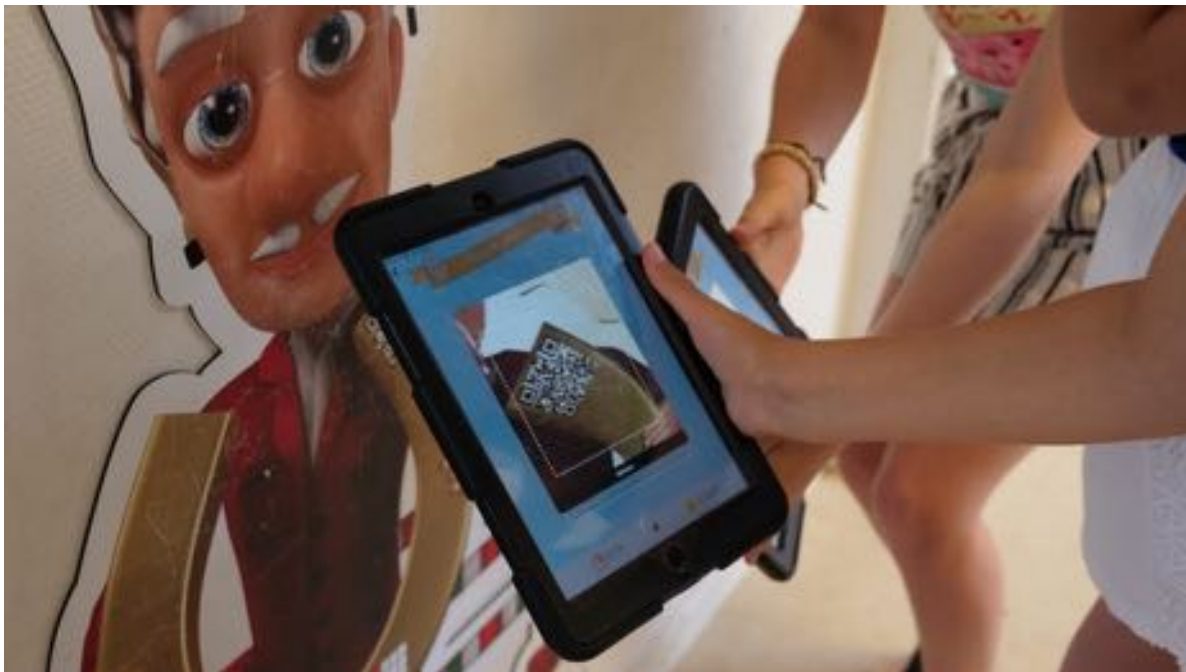
Work with programming starts already in Year 2 and continues through to Year 9. Coding in Birkerød School is presented and used in school but also in after-school activities (SFO).



## Digital First Movers

Birkerød School is up front in piloting new digital projects and platforms. Birkerød School has participated in the development of Matematikfessor. This platform is based on an adaptive base which continually challenges students at their individual level.

FessorRun, one of the features of MatematikFessor, engages students in physical activity while developing their mathematical skills. Fessor figures are found in every corner of our school and QR-codes open up for tasks for students from Years K to 10. The open learning space of the school is used broadly by students in this context. As with the rest of MatematikFessor, tasks change regularly and levels can be chosen according to individual students' proficiency.



Matematikfessor visits Birkerød School

Matematikfessor at Birkerød School



## Classroom examples

Teaching practice at Birkerød School is very diverse and possibilities for students to use iPads are very broad. Creativity is the outer limit of the possibilities we give our students.

The examples below illustrate some of the multiple uses of digital technology that are presented and designed in the classroom. Examples illustrate work at different year levels. What is common in these examples, is that students work with their iPads as a multimodal tool and that they have a wide range of freedom to choose the type of media they want to use in their products.

Based on our awareness of what we wish from specific learning processes, we can choose a relevant digital tool.

Working with Rime in Keynote

Learning the time

Experience the eye in AR



Winner of the national Innovation Prize at CRAFT 2019

## CRAFT

The Danish Championship in Digital Skills and CRAFT (Creating Really Advanced Future Thinkers) is a competition where students with the guidance of their teachers test innovative projects across the following areas: IT and learning, Problem solving and Innovation and Collaboration. Birkerød School has won the Municipal Championship twice and in 2019 has won the National Innovation Prize among 10000 participants.

There is a strong correlation between digital skills, a creative and innovative approach and, not to forget, the teachers' scaffolding which gives the steep learning curve students experience in this project.

We work with Deep learning in a project-based frame. Students work together, completely immersed in their project, for a week, getting feedback and input from their guiding teacher as they go deep. They work with innovative tool models. mock-ups, train how to make a better and better pitch for their product, plus much more. Evaluation criteria for the projects are:

- Use of IT
- Cooperation
- Problem solving and Innovation
- Perseverance, motivation og learning loops



Hist hvor vagen slår en bugt



Ligger der et hus så smukt.

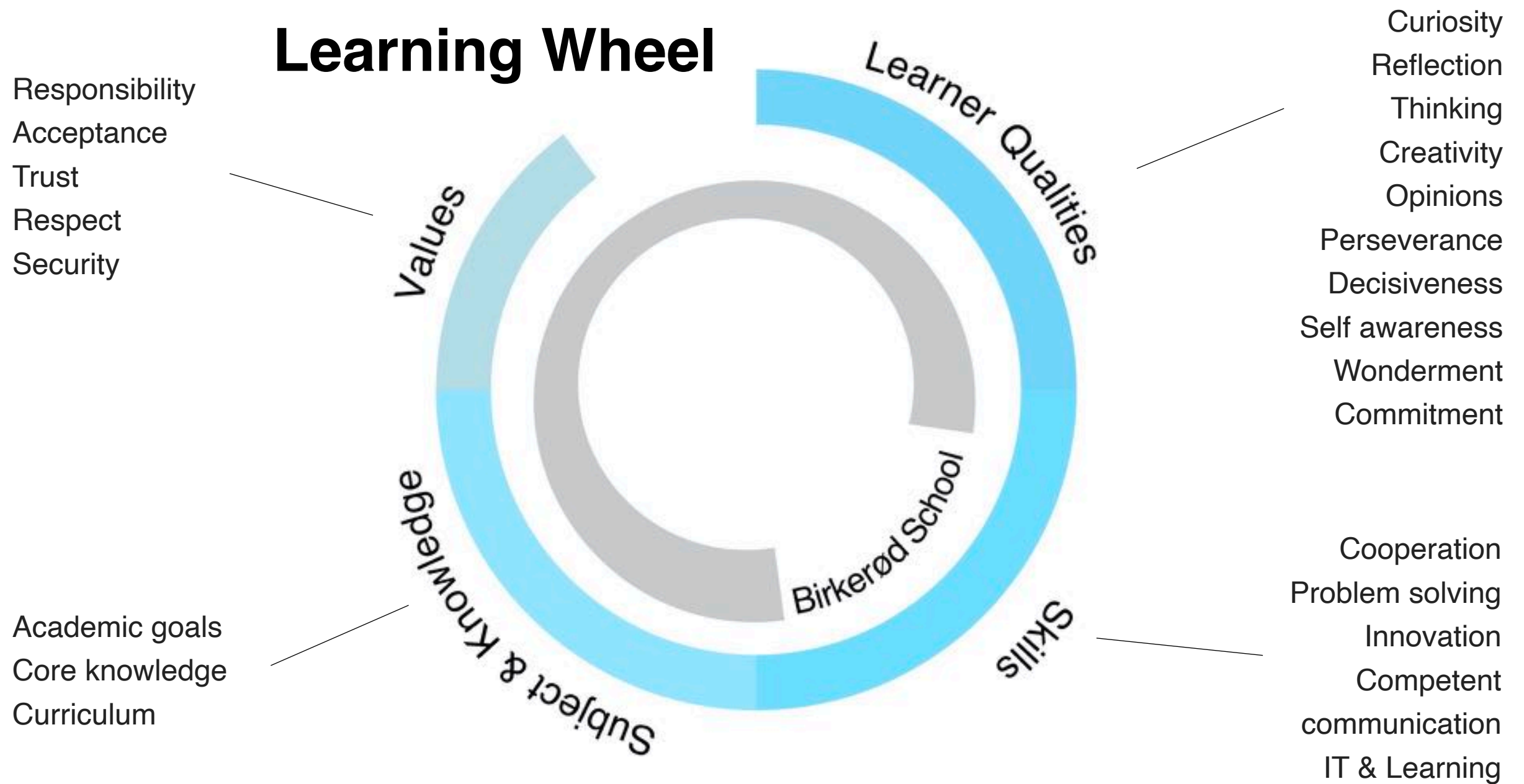


Danish rimes in Keynote: Text, Sound, and Magic Move animation.



Explain Everything in Math and working with design.

# Learning Wheel



The latest knowledge of Learning requires mutual understanding of what the core task “learning” means. No one knows the skills of the future but being able to acquire and navigate in new knowledge, understanding one’s learning processes and knowing what to do when acquiring new knowledge are important competencies in a new future. A school’s task is not only to teach academic knowledge but increasingly to work systematically with the school’s values, learner qualities and skills for the future. Our school works systematically towards bringing students in learning positions and give them understanding and action competencies that can enhance their learning capacity and motivation.



# From communicator to counsellor in learning processes

When we work with this shift in our understanding of learning processes, the role and professional practice of the teacher begins to change.

The digital approach must be thought into the process as a lever in the task of developing students understanding of learning processes



# Teaching

# Birkerød School's 4 angels for change.

## New Base for Learning

The first angle deals, amongst other things, with the technical side where we consider which possibilities digital tools like the iPad can offer, and how we can create a common learning platform from which development of learning processes can stem.

## Change Approach to Learning and Tasks

In the second angle, where we change our approach to learning and tasks, we see iPad and new digital tools as an opportunity for opening up to learning situations that are not solely focused on the teacher as a source of information and structure. Digital tools can support and scaffold learning processes in an alternative way.

## New Teacher and Student Roles

The third angle focuses on new roles. A digital approach gives, amongst other things, some radically new possibilities which means the teacher can take on another position or role in relation to students' learning processes.

## Increase Student Learning

The fourth and last angle is to increase student learning. It is essential in the teacher's preparation and evaluation to look at "how" it is possible to enhance learning processes in regards to "what" must be learned.



# Skills for digital administrators and Lighthouses at Birkerød Skole

The administrators' and Lighthouses' actions and role are essential in allowing the school to implement changes in our culture and the paradigm shifts we are in.

The most important point is to develop digital tools and processes that not only support academic goals but also develop Competencies, Learner qualities and Values necessary to meet the future”

## Role:

- implement and communicate digital pedagogical goals and strategies to colleagues in close cooperation with the administration and other Lighthouses.
- are digital front runners and find inspiration in and out of the school.
- participate actively in courses on digital practice and learning offered by Kompas.
- have knowledge, motivation and an innovative approach to finding and trying new digital possibilities while keeping the value of learning foremost.

## Actions:

- experiment with and try digital tools in teaching.
- promote digitaling development through own actions.
- give tasks to students so they can use digital tools and make digital products.
- use digital portfolios for example to document learning and evaluate progression.
- evaluate the quality of digital products in terms of learning results.

## Responsability:

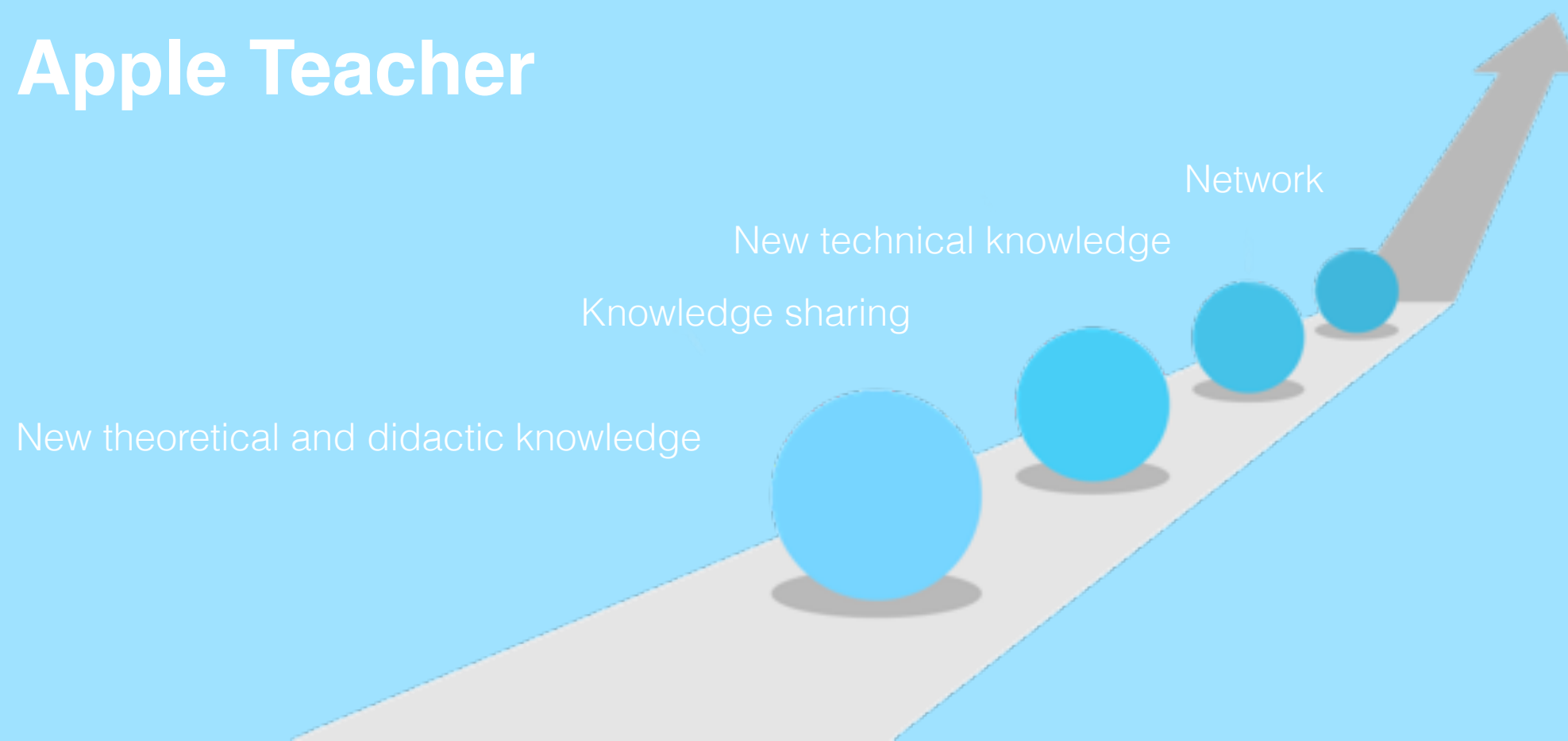
- observe and collect knowledge and data regarding digital practice.
- share knowledge and data with teams and other lighthouses.
- know and use whenever applicable TPACK, the 4 student positions, SAMR, 21st Century Skills, etc.
- be aware of colleagues' limits and be close to their practice.

# Lighthouse project

Birkerød School has the last four years worked at increasing the capacity of the school's digital use. A pipeline has been built systematically into the organisation. We have chosen a methodology and built solid scaffolding of processes, which steps in every time a new step is to be introduced and put into practice and shared across the organisation.

In 2018-19, Birkerød Skole took up a partnership around developing creative, innovative and digital learners and teachers. The school chose 12 employees to be Digital Lighthouses, whom, together with the administration and in cooperation with Kompas, have started on a digital competency course. Kompas and the Lighthouse Project steering committee used baseline and focus group interviews to define a tailor-made competency process for the participants. Lighthouses will now, in the coming year, share what they have learned and will be guided in scaffolding their newly acquired knowledge and digital competencies, so the rest of the school's employees can build upon their knowledge.

## Apple Teacher







## Skills for digital teachers and after-school activities employees at Birkerød School

It is important that expectations regarding use and understanding of technology are clear for employees in our school.

- I must be able to explain and understand why digital change is important.
- I must be able to use the digital tools available to me.
- I am aware of and understand my adaptation and learning processes and have strategies for how to learn something new.
- I know what to do when I am challenged by new technology.
- I have developed competencies that live up to the skills change requires.
- I can make links between digital tools and students' learning processes.
- I am a critical thinker in terms of developing better learning processes.

# SAMR Model by Ruben R. Puentedura

# R

Redefinition

Technology allows the design of new tasks that were previously not possible

# M

Modification

Technology allows for significant re-design of tasks

# A

Augmentation

Technology, as a direct tool, changes with functional improvements

# S

Substitution

Technology acts as a direct substitute, with no functional change.

The SAMR-model fits us well as it increases awareness regarding which forms of digital teaching materials we choose to focus on.

## Strengthening innovative learning processes

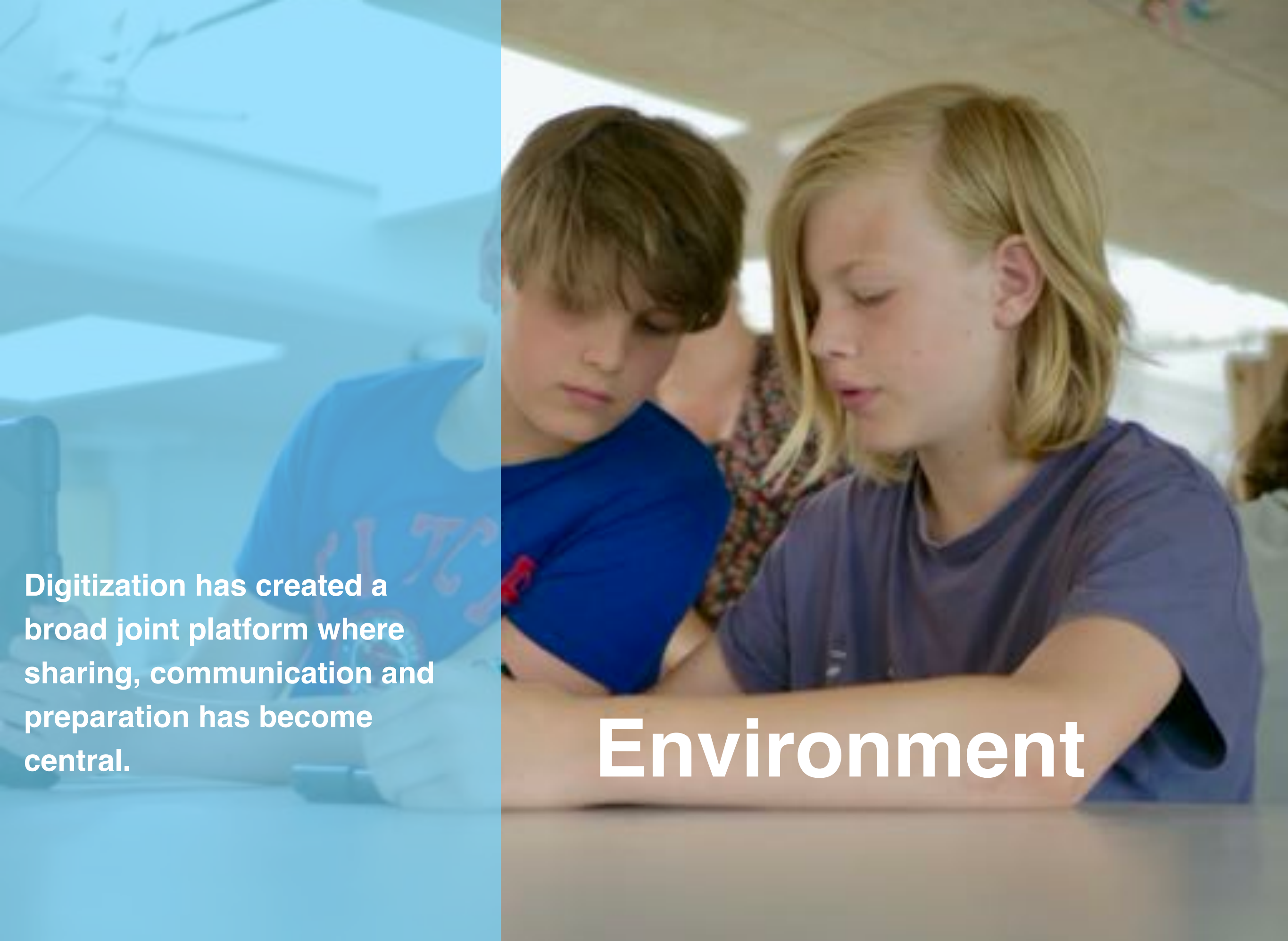
At Birkerød School, we work with understanding of technology as an integral part of understanding learning and change processes. It is not enough to use digital devices just for the sake of it. We specifically scaffold the change in understanding in our teaching staff so that it becomes the essential mindset in their work.

Teaching staff do not need to be extremely innovative, reaching for creativity's extreme boundaries. To be able to transfer knowledge or redesign is also a level of technology understanding.

Understanding of learning and it's development is natural and basic in developing one's digital practice and we scaffold our employees where they are in their own digital learning process.





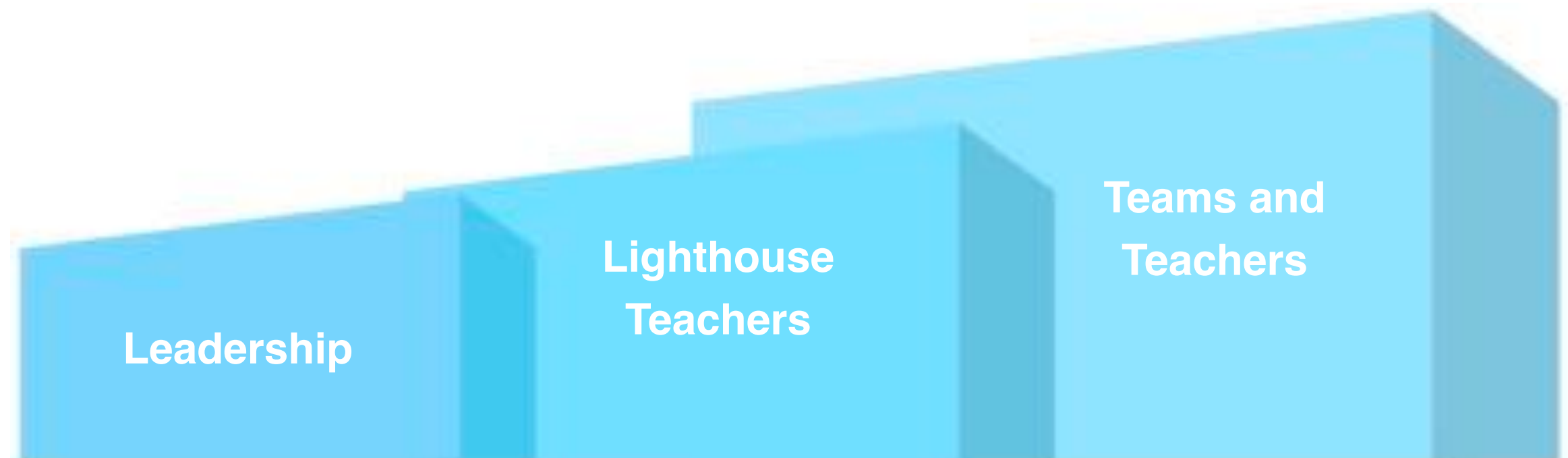


**Digitization has created a broad joint platform where sharing, communication and preparation has become central.**

**Environment**

# Pipeline

## Our way in implementing digitization



The school is organized around groups focused on two years (K-1, 2-3, 3-4, etc.). The teachers collaborate in subject teams spanning two years and teaching is timetabled at the same time. This means, for example, that there are three Danish teachers for three Year 8 classes both in their professional learning community and in teaching. We work across each year's three classes, which gives us the possibility to differentiate the level, the content and the form of learning processes.

Our school has 15 learning coordinators and 12 digital lighthouses who work closely with Year teams in coaching them in any stage of their use of digital learning processes in their teaching practice. We have possibilities to make broad coordinated moves but also act at very small levels. For example, a coordinator can guide in the preparation process but also come and take the role of a co-teacher.



## Visible Learning

During the past three years Birkerød School has focused on creating and developing the practice of using different learning environments to develop the students' awareness of how they learn and how they can improve their learning skills. We work with goal-oriented learning strategies and feedback. Teachers, after-school-activities employees and management look at the effect of their pedagogical choices and aim to note the behaviour and actions in students' learning. It is the development of students' learning skills that is at the center of our digital organisation and development of technical understanding.

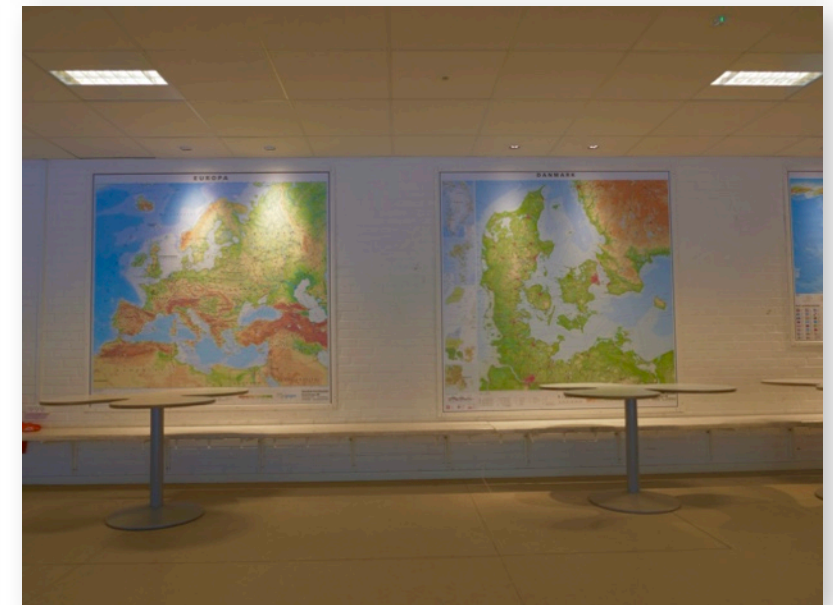
**All students have to learn, how to learn, more.**





# Professional Learning Communities

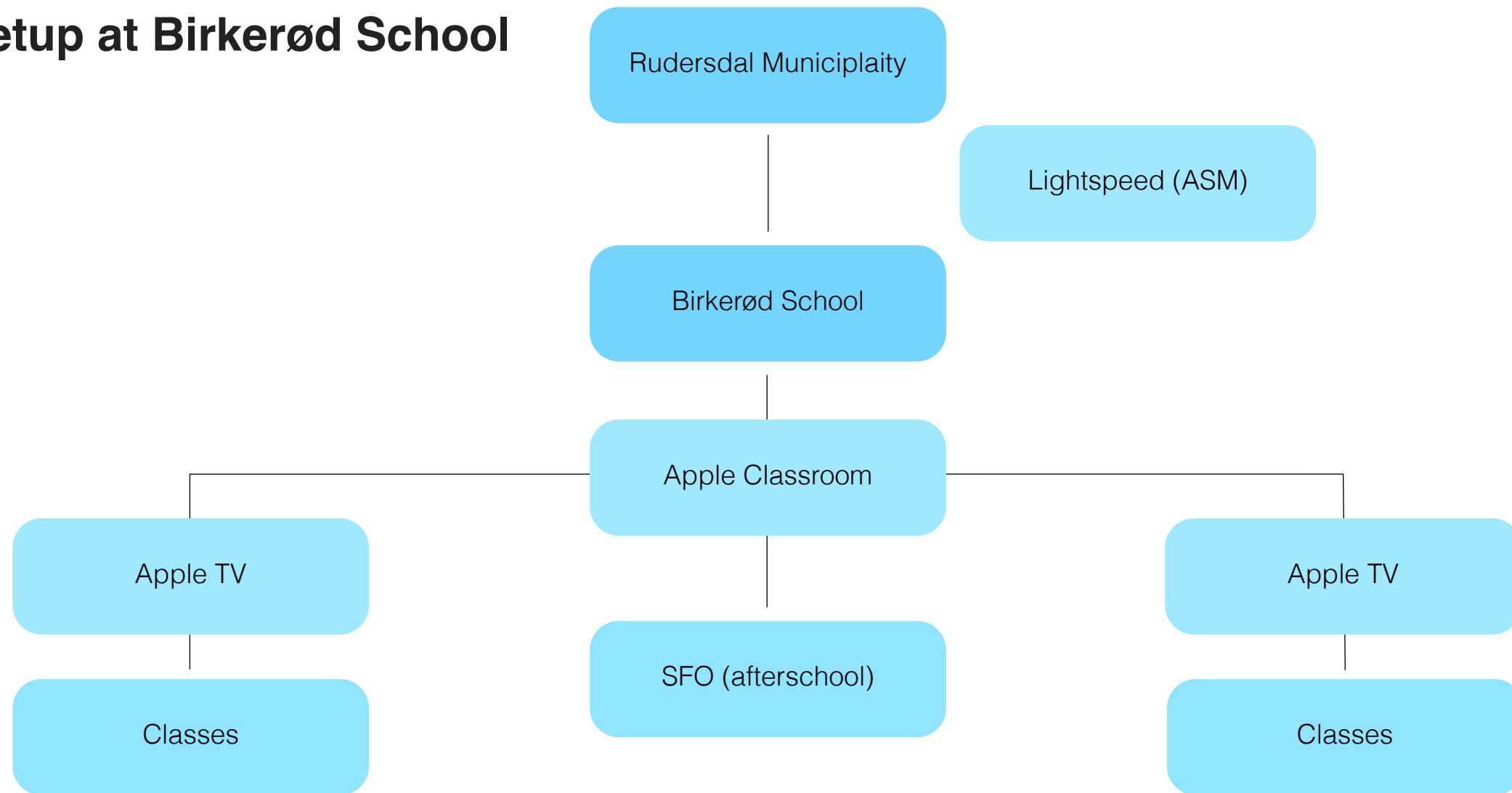
## Improvement of practice



We work towards “FROM ME TO WE” and, in general, solidifying a culture of sharing knowledge and experience in our learning communities. The cornerstone of continually building the capacities in our learning communities and the pipeline organisation is a culture of development where it is acceptable to make mistakes. This means we have a culture where we find solutions to difficulties. We are, as a school, ready to take the next step on the way to our new vision.



# iPad Setup at Birkerød School



Rudersdal Municipality has a 1:1 strategy for iPad for students utilizing 5500 iPad devices. All of the are managed through our Mobile Device Management system called Lightspeed. This means that every school, including Birkerød School, has full control to send specific apps to the teams, teachers, classes and students to suit their different learning styles and wishes for teaching and learning. Apple Classroom on the iPad is used by the teachers at Birkerød School to manage the learning enviroment for the students. Through the tools of Apple Classroom the teachers can guide their teaching and easily share the work when needed or project it to the Apple TV which are located in every room at Birkerød School.

# Results

Know Your Effect



We work systematically in terms of collecting data on our students' progression. We also measure our practice biannually by surveying students, teachers and the administrative staff on the effect of their learning practices, professional support and guiding as administrative staff.



## Result culture

We never work with results just for the sake of getting results. It is a question of having constant focus on improving our practice so that everyone can learn to learn more. The thought of being able to move students forward in their learning progression through our use of digital tools makes digitization something central for our school. We are convinced that technology literacy and development in regards to learning is just in its beginnings. We cannot reach our goals alone, so it is essential to build a mindset and professional culture where “WE” is the cornerstone of our work.

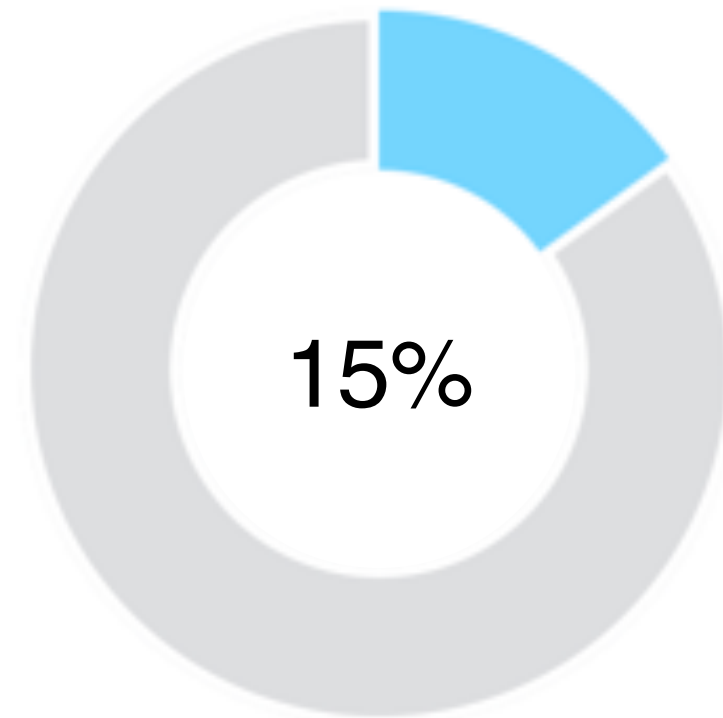


## Know Your Effect

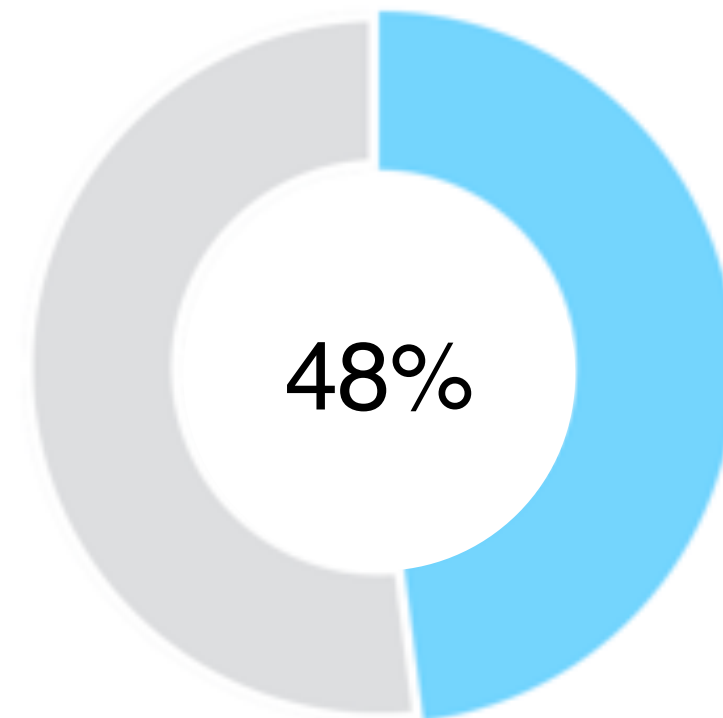
Four years ago, the Municipality of Rudersdal performed a municipal survey on schools' digital skills and understanding. In 2019 Birkerød School also carried out a survey on use of digitization in learning processes. Furthermore, we have also conducted focus group interviews on our digital focus and how we can improve or change our course of action.

This intensive and detailed monitoring of our practice makes it possible for us to react with flexibility towards developing new actions. We do not change our vision but easily change our strategy and goals so we can ensure everyone feels they are part of our school's culture of development and change.

**2016**



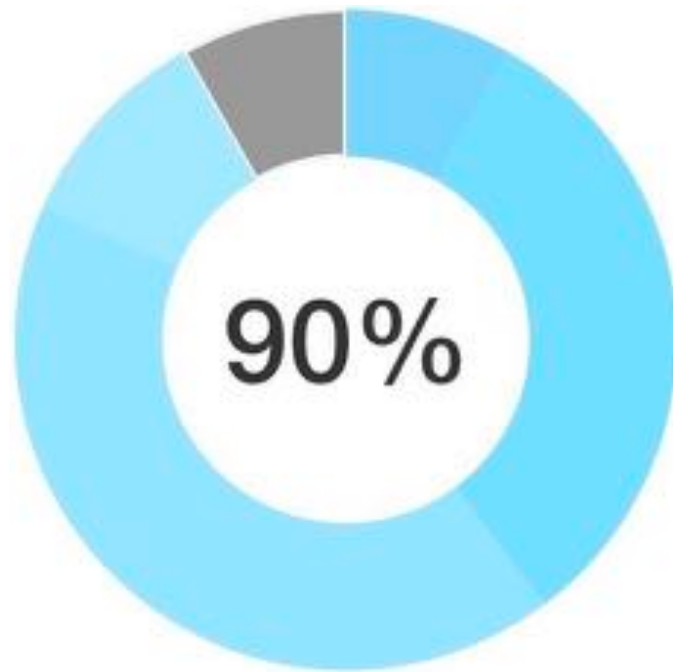
**2019**



Teachers find inspiration and feedback for their teaching from subject coordinators and special resource colleagues at school.



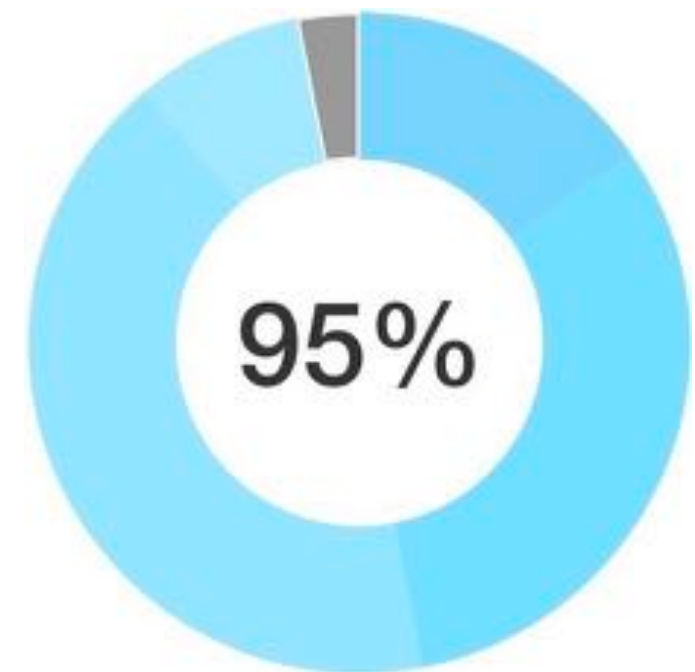
## Baseline januar 2019



90% of teachers believe use of iPad improves their teaching practice.



92% of teachers feel the use of iPad in their teaching supports the educational goals they have for their students.

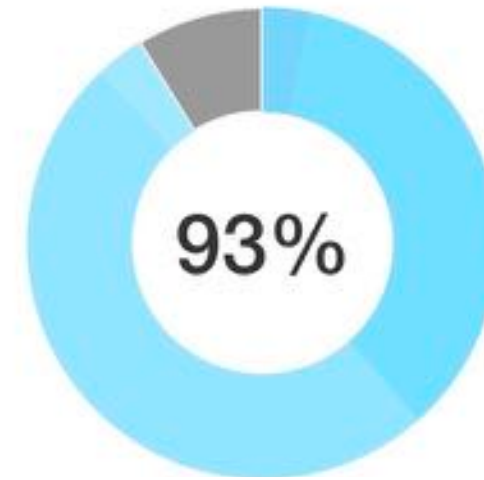


95% of teachers believe iPad are instrumental in changing traditional teaching.

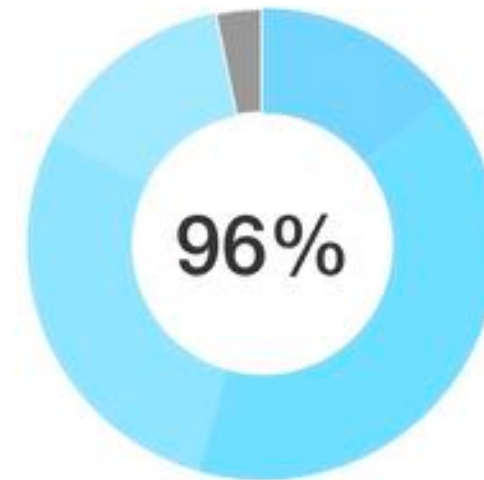
At Birkerød School, we work intensively towards having a teaching staff which utilizes iPads, MacBooks and other technological tools naturally. This has led to a staff that is aware of the technical and professional options that iPads can create in their teaching practice. It has been our goal at Birkerød School that use of technology in teaching can create new ways of teaching and support our work in reaching our vision.



## Baseline januar 2019



The students can decide which app to use for the assignment



The students use iPad to collaborate.

The students are very familiar with the use of iPad. As our baseline shows the majority of the students are more than capable at using the endless opportunities of the iPad. This means that the students can navigate between different approaches and choose what they decide is best for the given assignment. Furthermore the student use the iPad to collaborate on a regular basic.



# A natural progression

At Birkerød School we see it as a natural progression to further develop the learning, teaching, and environment at the school, to make sure that every student has the ability to learn how to learn more. Birkerød School is devoted to work with an innovative mindset based on the 21st century teaching. At Birkerød School we want to experiment, and prototype, so the students advance their Learning according to Birkerød School's Learning Wheel.

It is a goal at Birkerød School that all teachers understands the concept of innovation, collaboration and technological literacy. This requires an understanding of the T-PACK thinking which is based upon the navigation between technological knowledge, pedagogical knowledge and content knowledge.

- The leadership of the school has the obligation to keep disrupting the teaching and use the methods and tools from Visible Learning to support a creative and innovative approach to education.
- The leadership of the school has the obligation to create connections that makes the Schools vision accessible for all teachers and students.
- The leadership of the school has the obligation to be clear on which actions support the Lighthouse project.







# A natural next step

The success of creating an implementation setup where, the use of iPad truly is transforming the teaching and learning, is naturally calling for a next step.

Right from the start it has been our ambition that the knowledge acquired through the Lighthouse project spread out to the other schools in Municipality of Rudersdal.

Therefore, Birkerød School is working closely together with the administration of the Municipality of Rudersdal, and the digital consultant, in transferring the knowledge gained through the experiences from the Lighthouse project.

This is done through a process where databased leadership, learner-qualities, and digital skills, in the organisation are developed into a concept that can continue to evolve the learning, teaching, and environment of Birkerød School.

The Lighthouse teachers are close to the everyday-teaching, and they also support the organisation through co-teaching with a focus on supporting and transforming the teaching, including the digital possibilities, that the iPad offers.

Birkerød School is not a closed ecosystem, but a free, democratic learning environment, where we sincerely aspire that wisdom acquired shall be shared throughout the organisation of the Municipality of Rudersdal and beyond.

# Credit and contributions





# Credit and contributions



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