

Team-basert læring

Frank Alexander Kraemer

kraemer@ntnu.no

Hvorfor TBL?

- 1 Relativ lett måte å komme fra en tradisjonell forelesning til aktiv læring og omvendt klasserom
- 2 Effektiv bruk av tid (når det er først satt opp)
- 3 Kan være en veiviser for fremtidens undervisning

TBL sett utenfra

Teams

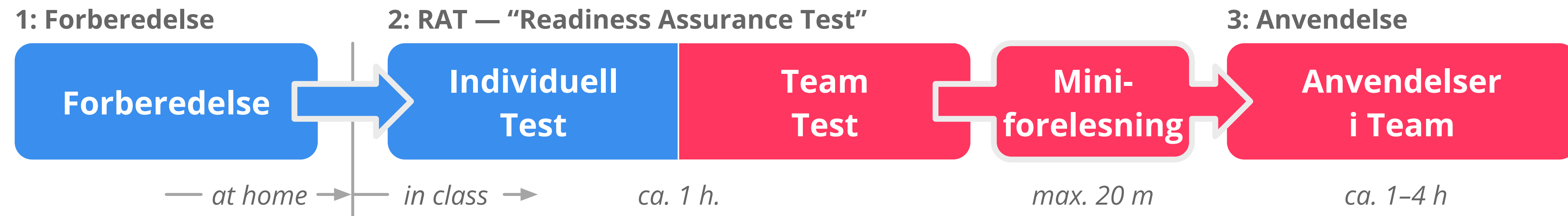
5 til 7 studenter

teams skal forbli sammen over hele semesteret

inndeling gjennom faglærer, altså ikke selvvalgt



Læringsenhet

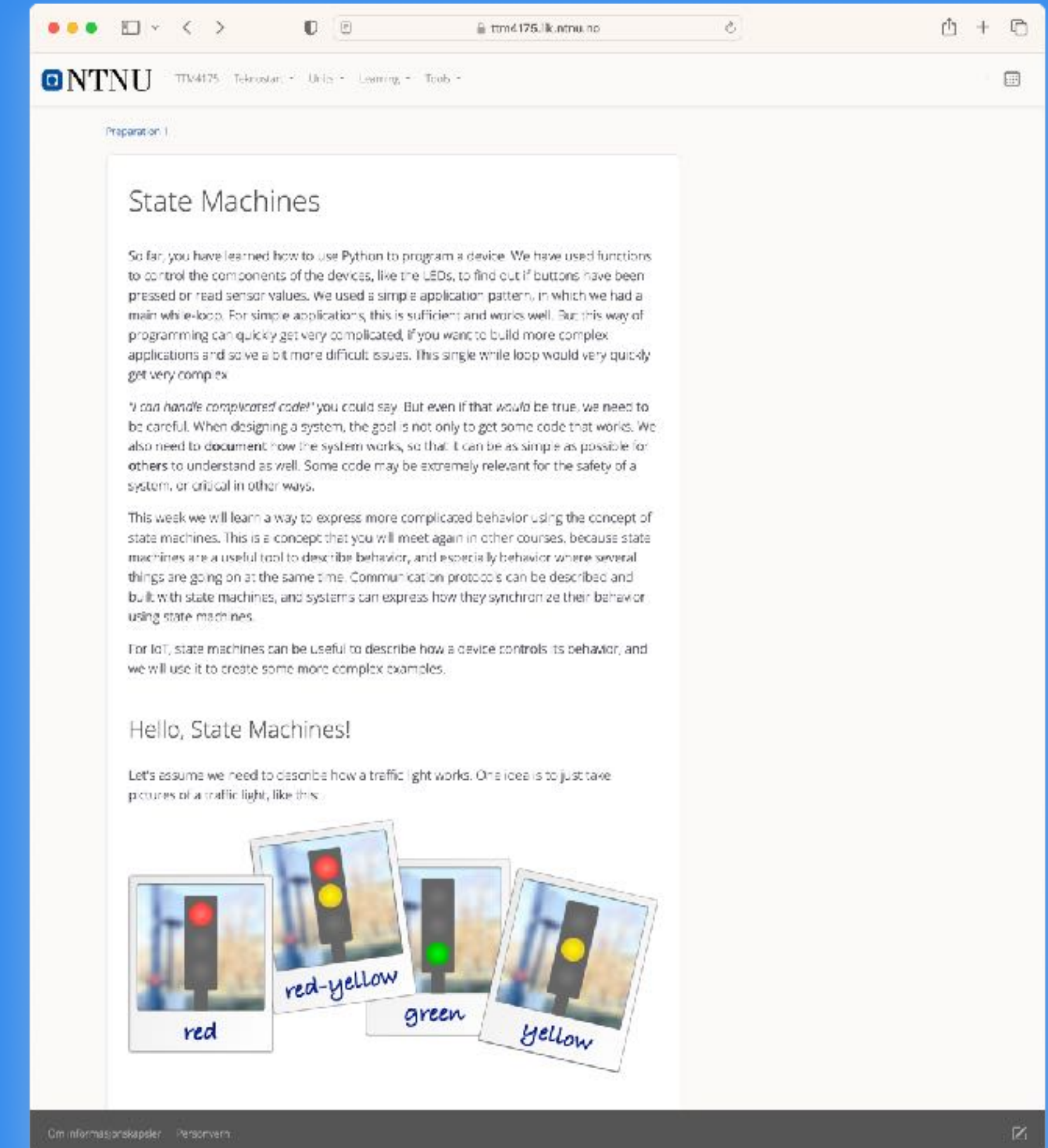
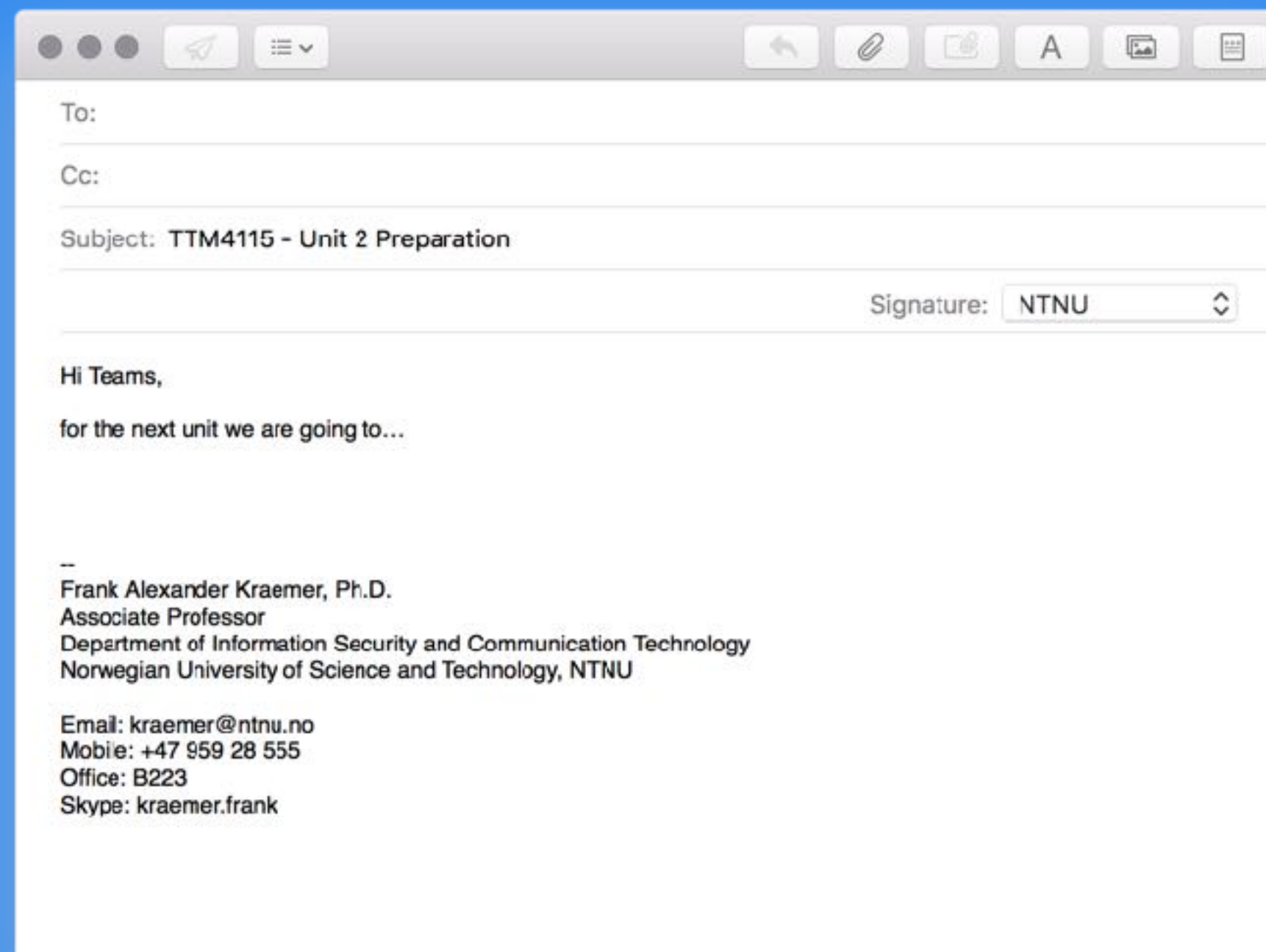
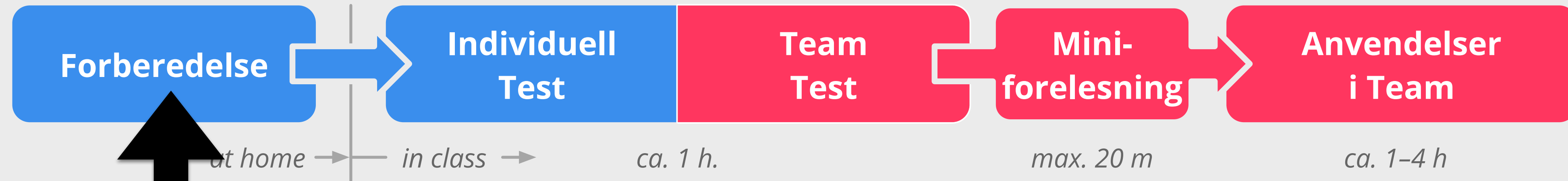


Omtrent 1 læringsenhet per uke

1: Forberedelse

2: RAT — "Readiness Assurance Test"

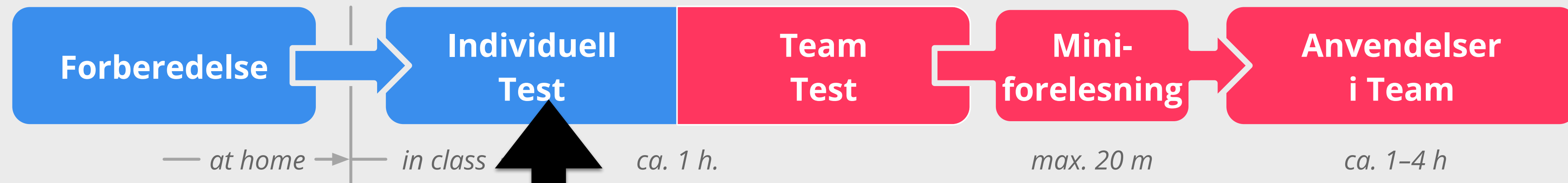
3: Anvendelse



1: Forberedelse

2: RAT — "Readiness Assurance Test"

3: Anvendelse



Flervalgstest

Ca. 10 spørsmål

4 svaralternativer A-B-C-D

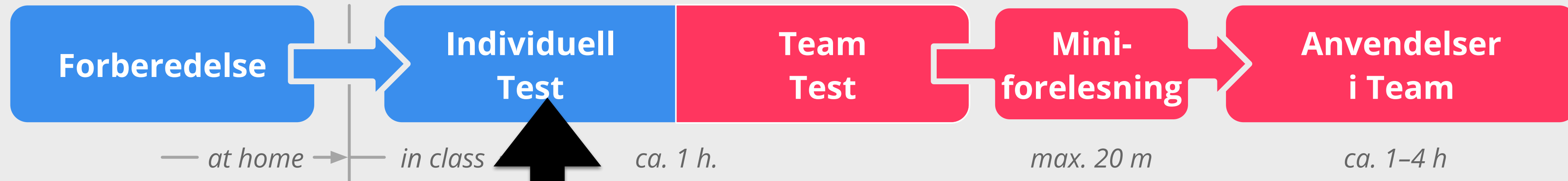
Ett av alternativene er "best"

Spørsmålene kan med litt erfaring utformes ganske komplekse — men enkle spørsmål er verdifulle også

1: Forberedelse

2: RAT — "Readiness Assurance Test"

3: Anvendelse



0
Sound Learning

Full name *Peter B.*

Name code *P B 1*

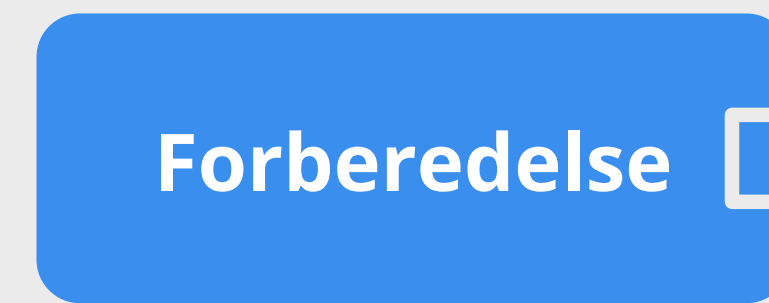
Answer to questions (A, B, C, or D) *A₁ B₂ - C₃ D₄ - A₅ B₆ - A₇ C₈ - D₉*

Instructions:

- Select exactly one answer, the one that matches best.
- No helping material is allowed.
- Copy your final answers into the scheme

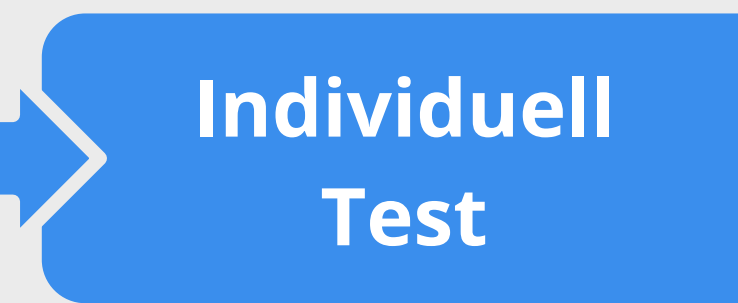
tion 1.

1: Forberedelse



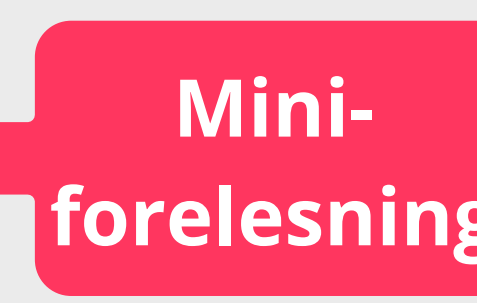
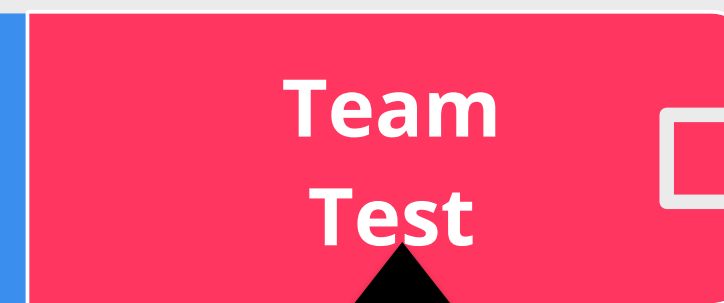
— at home →

2: RAT — "Readiness Assurance Test"



in class →

ca. 1 h.



max. 20 m

3: Anvendelse



ca. 1-4 h

Team-RAT

samme test en gang til

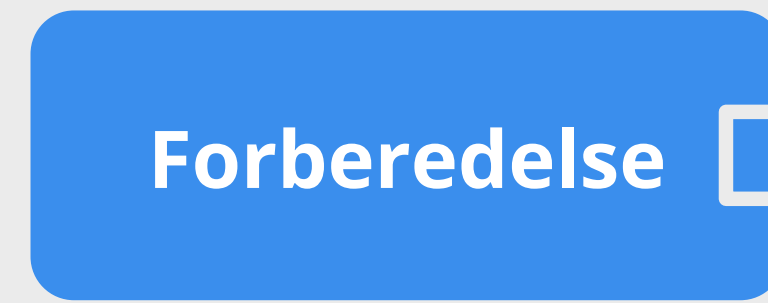
denne gangen i team av 5..7 studenter

studentene skal diskutere rett løsning

får vite beste løsningsalternativ underveis

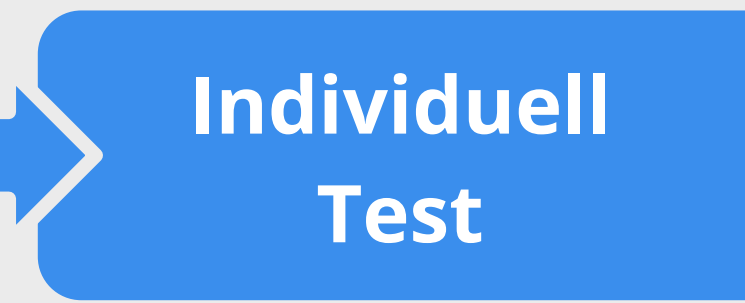
viktig: lærer går rundt og lytter!

1: Forberedelse



— at home →

2: RAT — "Readiness Assurance Test"



in class →



ca. 1 h.



max. 20 m

3: Anvendelse



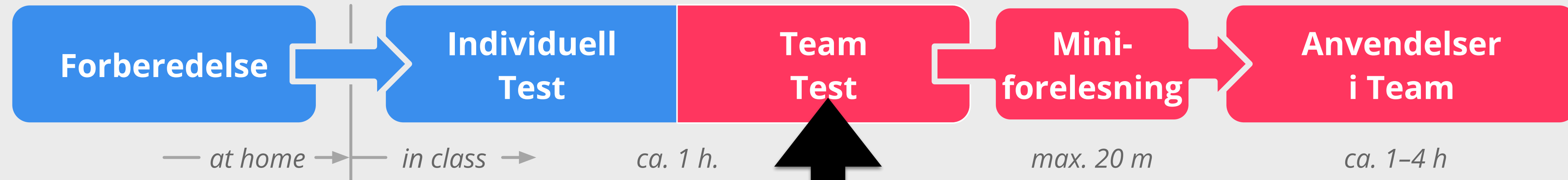
ca. 1-4 h



1: Forberedelse

2: RAT — "Readiness Assurance Test"

3: Anvendelse



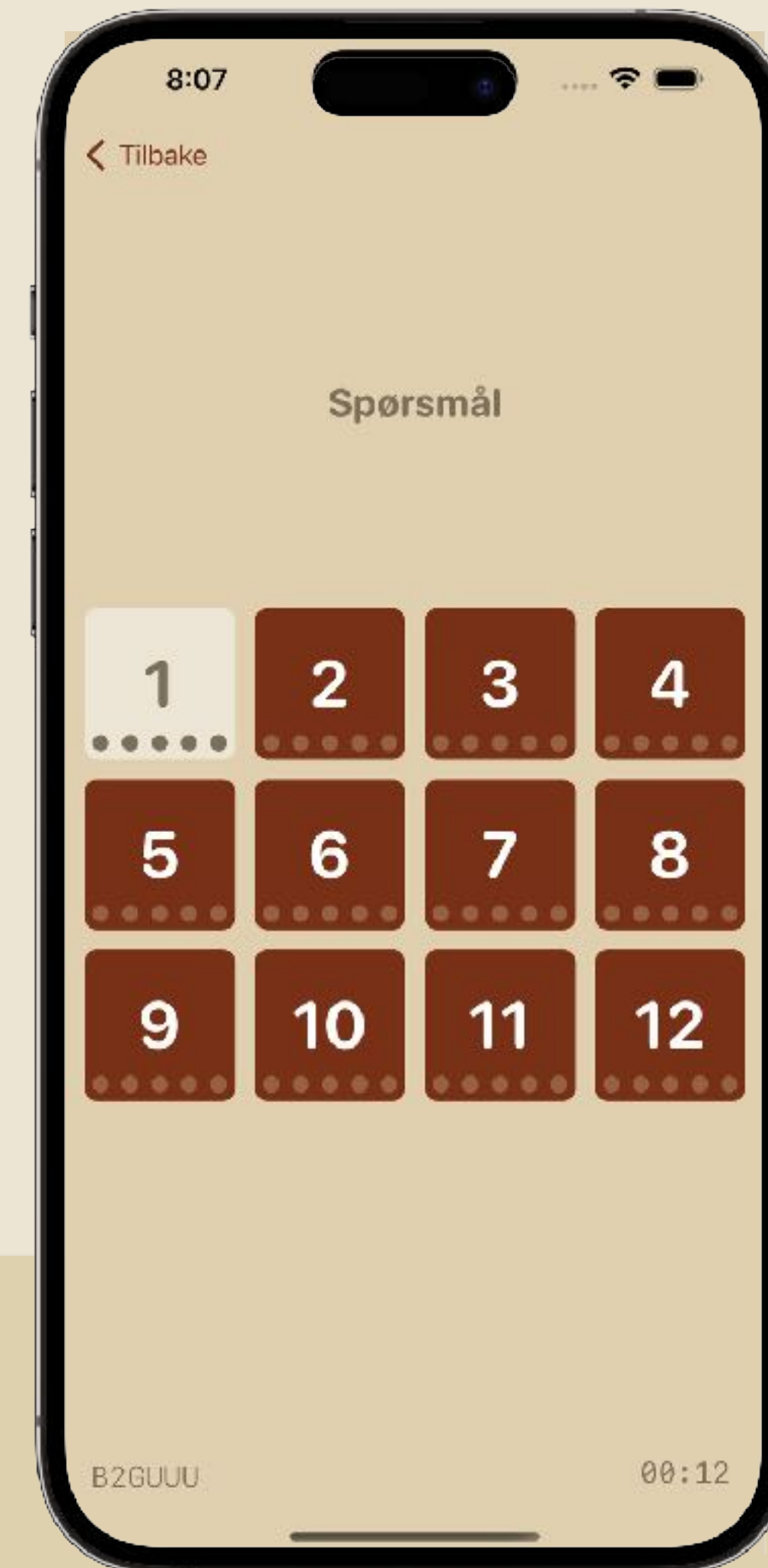
Nøtteknekker-App

viser rett svaralternativ underveis

trenger kun én iPhone per team

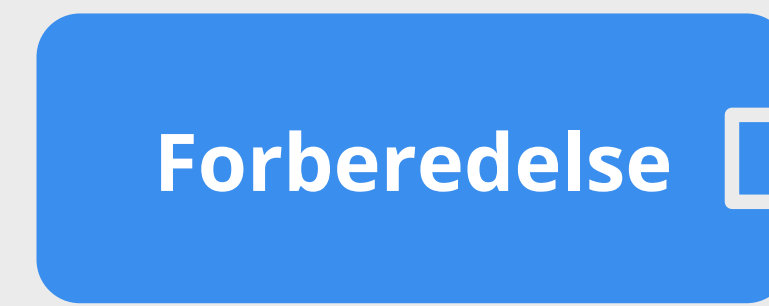
enkelt å bruke og gratis

lagt med ♥ ved NTNU



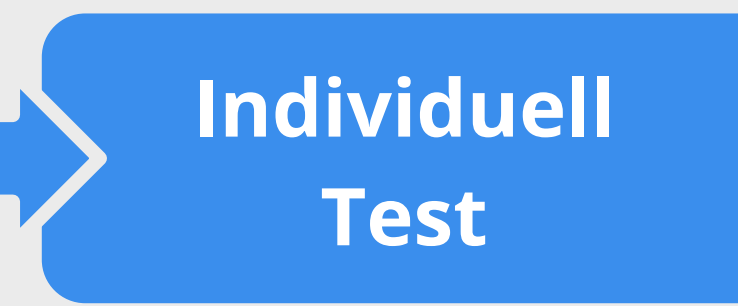
<https://s.ntnu.no/nuts>

1: Forberedelse



— at home →

2: RAT — "Readiness Assurance Test"



— in class →

ca. 1 h.



m



3: Anvendelse



ca. 1-4 h

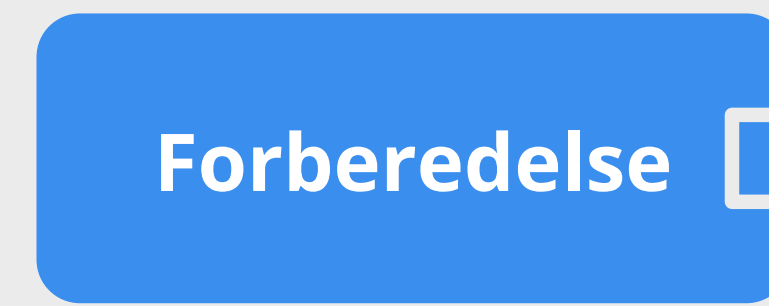
Mini-Forelesninger

Repetisjon av noe som var vanskelig

Introduksjon av ny materiale som bygger direkte på det som ble lært så langt

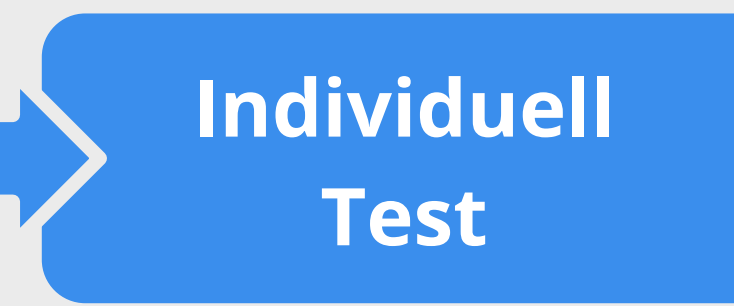
Spontane interaksjoner i klassen

1: Forberedelse



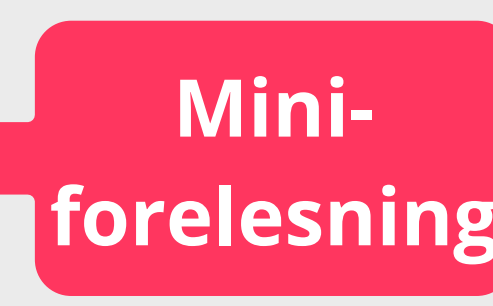
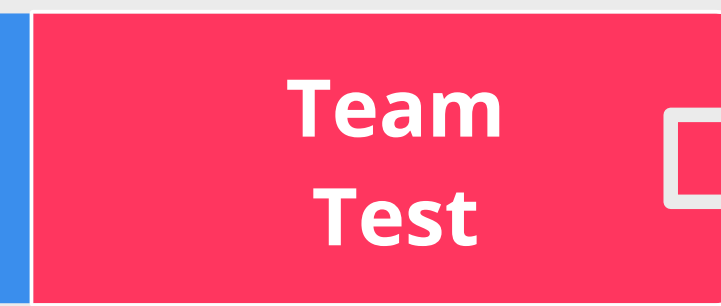
— at home →

2: RAT — "Readiness Assurance Test"



in class →

ca. 1 h.



max. 20 m

3: Anvendelse



Anvendelser i team

oppgaver som anvender det man har lært

kan varer alt fra noen få minutter til noen timer

4-S prinsipp:

problemet skal være *signifikant*

alle teams får det *samme* problemet

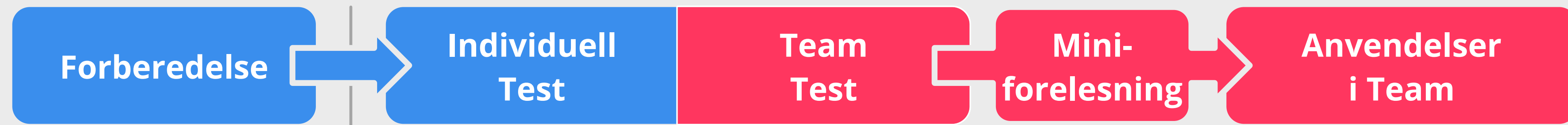
studentene skal ta et *spesifikt* valg

alle rapporterer sine valg *samtidig*

1: Forberedelse

2: RAT — "Readiness Assurance Test"

3: Anvendelse

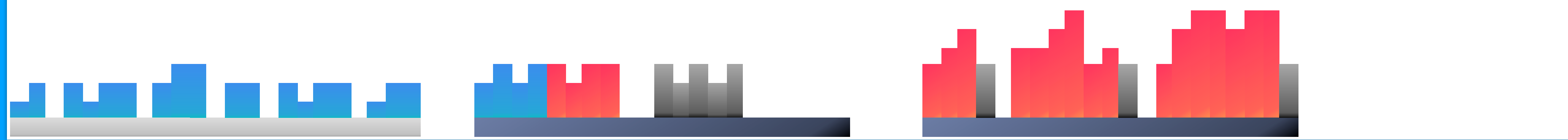


Preparation

RAT

Mini-Lecture

4-S Team Activities



TBL

Preparation

RAT

4-S Team Activities

Lab



TBL with Lab, TTM4175

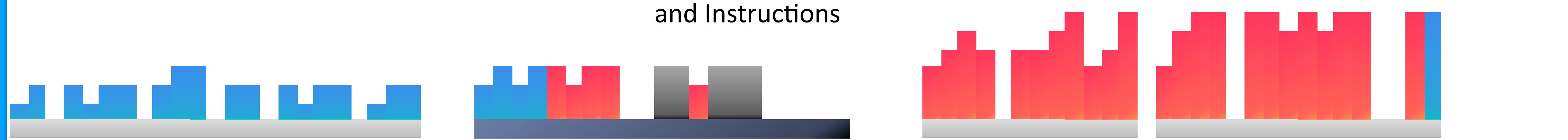
Preparation

RAT

Feedback and Instructions

Team Activity

Reflection



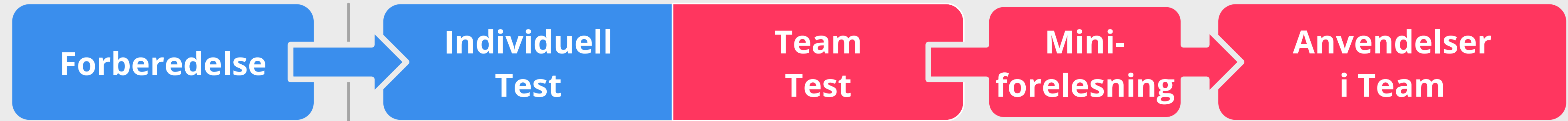
TBL with distributed teamwork, TTM4115

TBL under overflaten

1: Forberedelse

2: RAT — "Readiness Assurance Test"

3: Anvendelse



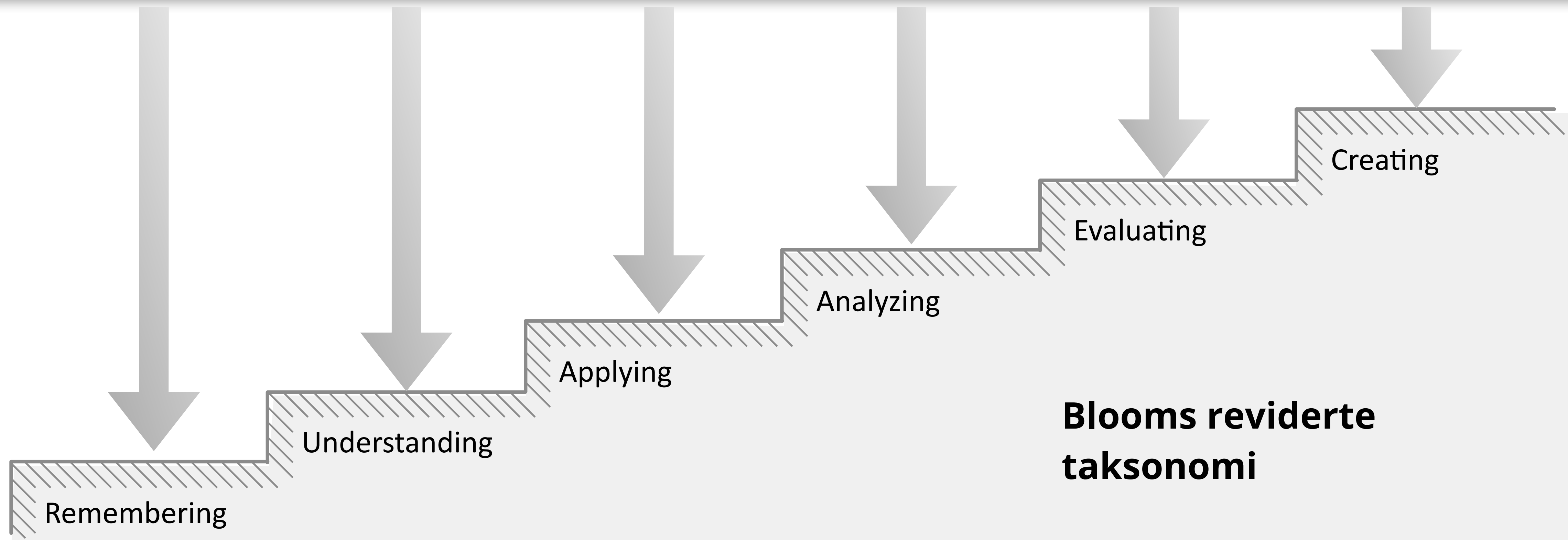
— at home —>

in class —>

ca. 1 h.

max. 20 m

ca. 1-4 h



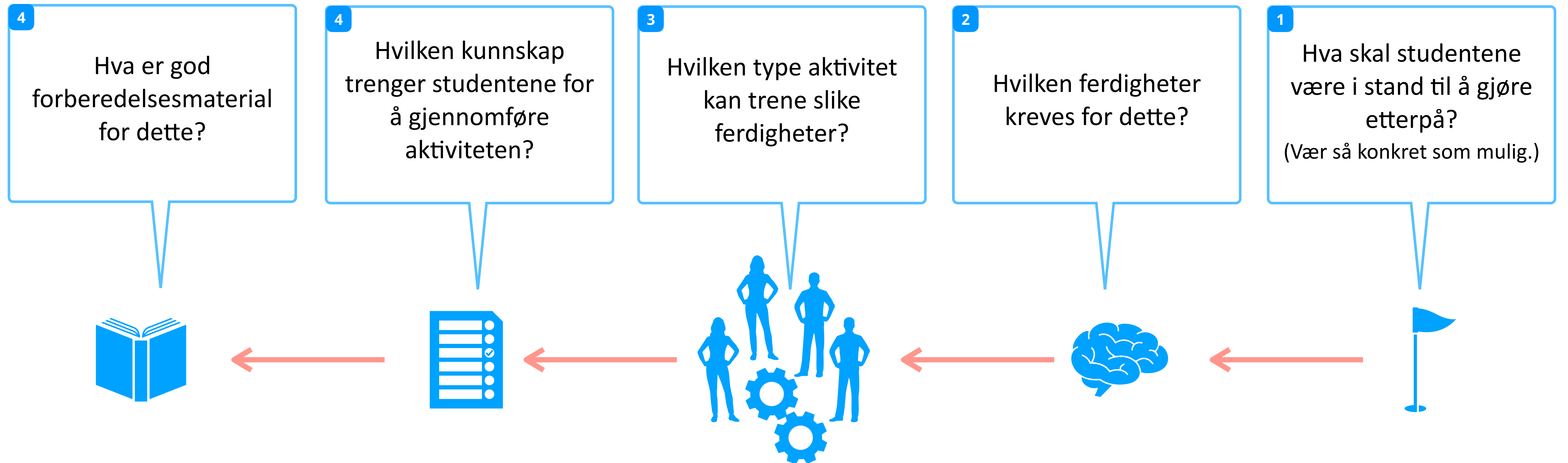
Blooms reviderte taksonomi

Samstemt undervisning

(Constructive alignment)

Omvendt design

Oppbygning av en læringsenhet "tvinger" deg nesten til omvendt design



TBL og vurdering

Vurdering

TBL helt uavhengig av vurdering

Resultater fra RAT som del av vurdering

Anbefaling:
start her

RAT teller ikke

Motivasjonen kan likevel være stor å forberede seg

Gjør det administrativt så mye lettere

RAT er obligatorisk, men resultatene teller ikke

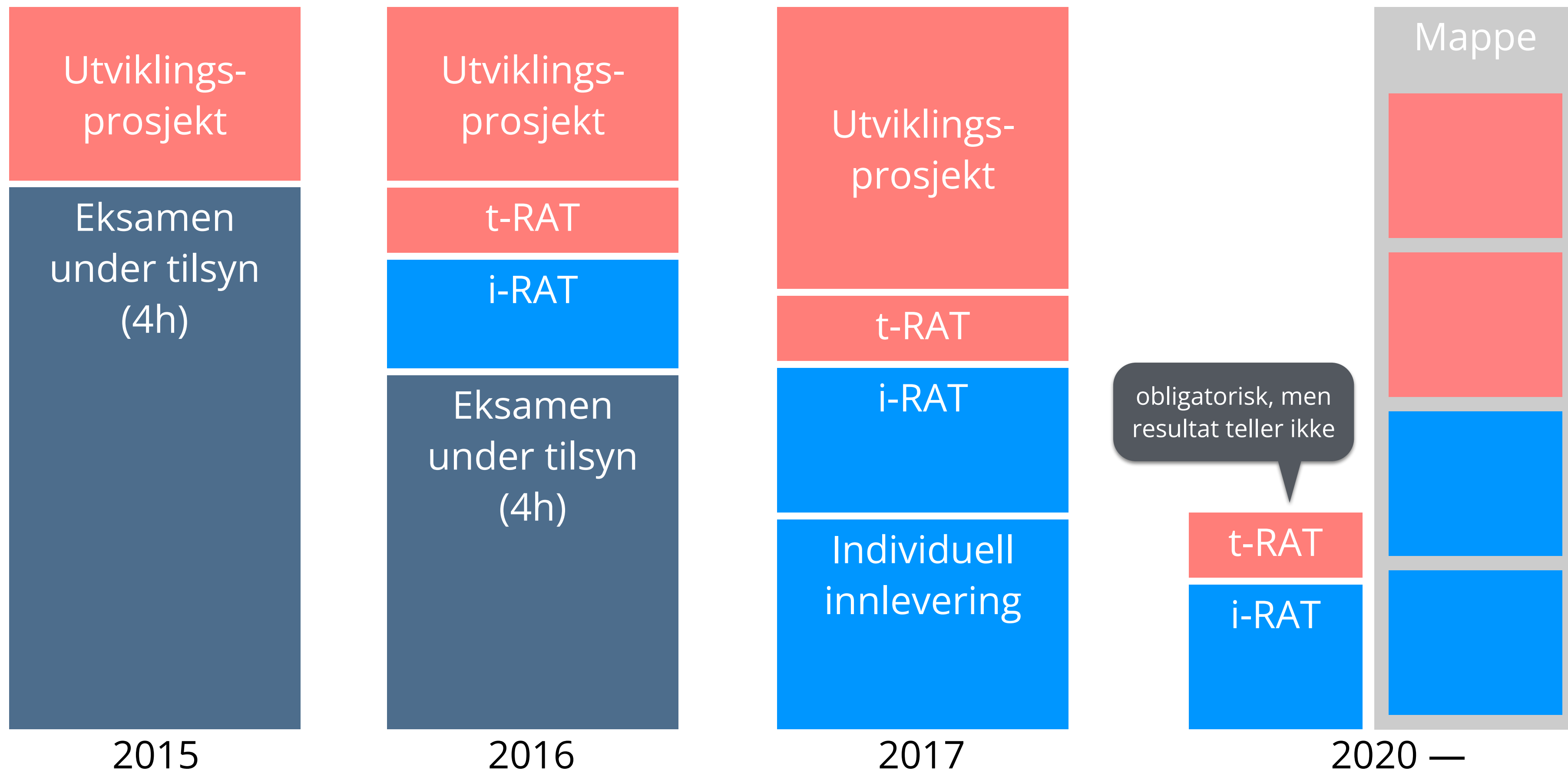
RAT teller, både team og individuell

Verdsettes av studentene

Krever oppsyn og mer kontroll

Kan gi feil signal — RAT heller som forberedelse og tilbakemelding enn vurdering

Vurdering i TTM4115



TBL i fremtiden

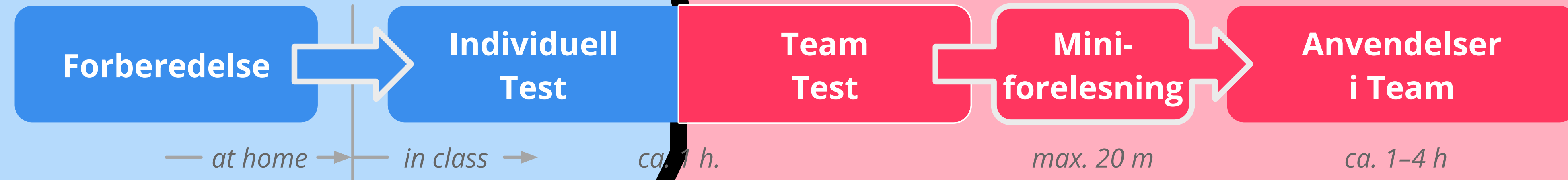
digital
individuell
hjemme
asynkron

i felleskap
på campus
synkron

1: Forberedelse

2: RAT — "Readiness Assurance Test"

3: Anvendelse



Test ut TBL!

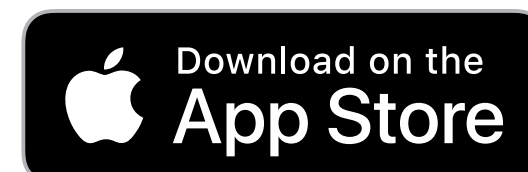
Prøv ut TBL!

Du trenger ikke spesiell rom

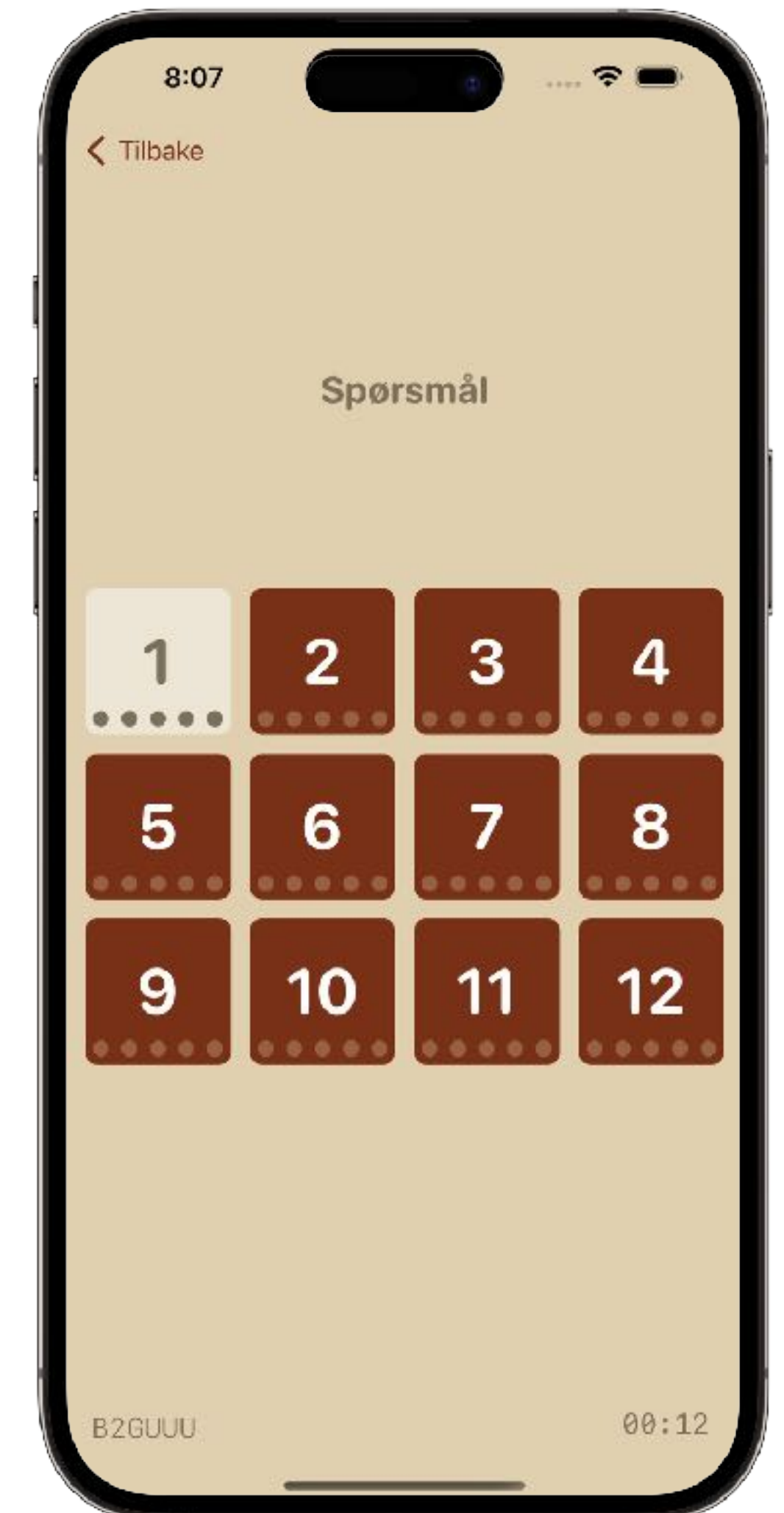
Du trenger ingen endring i EPN

Begynn med en RAT og se hva som skjer med studentene

Nøtteknekker



<https://s.ntnu.no/nuts>



Mer om TBL

Artikkel: *The essential elements of team-based learning*

Larry K. Michaelsen, Michael Sweet (2008)

<https://doi.org/10.1002/tl.330>

Bok: *Team-Based Learning — A Transformative Use of Small Groups in College Teaching*

Edited By Larry K. Michaelsen, Arletta Bauman Knight, L. Dee Fink (2004)

<https://doi.org/10.4324/9781003447535>

Bok: *Getting Started With Team-Based Learning*

Jim Sibley, Pete Ostafichuk (2014)

<https://doi.org/10.4324/9781003445012>

PEDUP-modul, 20 timer, "TBL i praksis", våren 2024

Spørsmål

Bruk Q&A i Zoom