



**DANISH MINISTRY
OF EDUCATION**
NATIONAL AGENCY
FOR IT AND LEARNING

”Better access (and sharing) of digital learning resources”

- Using knowledge/skill-objectives in the curriculum for metadating learning resources
- Three developed DK-standards
- Other initiatives

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Using curriculum for metadating learning objects/content

Clarification and simplification of the curriculum - overview

Intention in 2013/2014:

- Clear objectives for students' learning will contribute to an increase of academic standards for the academically gifted students as well as for the academically weak
- The size and number of the Common Objectives will be reduced and simplified considerably.
- The new curriculum does not change the content of the subjects, but focuses on the students learning outcomes.

| | Curriculum 2009 | New curriculum 2014 |
|-----------------------------|--------------------------|--|
| Number of pages | 89 pages | 10 - 15 pages |
| Number of objectives | More than 100 objectives | 20 - 25 objectives |
| Guidelines | Printed | Digitised - Dynamic educational portal |



Clarification and simplification of the curriculum

- A **few overall competence objectives** with underlying skills and knowledge objectives. Must create links between teaching content and student learning through systematic link between competences, skills and knowledge.
- The overall competence objectives are made up of building blocks, which are targets of the knowledge and skills that students should acquire.
- The skills- and knowledge objectives 'break down' learning outcomes by topics (target pairs) and phases (progression).
- The objectives are set in phases explicate the progression the student must go through a school career.

Clarification and simplification of the curriculum

- Phase objectives are not linked to a specific grade level.
- Phases provide indicators for progression ahead the competence objectives. One phase per grade levels included (eg 3 phases in 1-3 grade).
- To challenge both academically weak and gifted students we set binding attention points in key core areas in Danish (reading) and Maths, and along with examples of ‘challenge goals’ that can challenge the gifted students.

The main political goal for compulsory education is (reform)

- 1. The public school must challenge all students to reach their full potential.**
 - Target 1.1: At least 80 per cent of the students must be good at reading and Maths at national tests.
 - Target 1.2. The number of high achievers in Danish and Maths must increase year by year.
- 2. The public school must lower the significance of social background on academic results.**
- 3. Trust in the school and student well-being must be enhanced through respect for professional knowledge and practice in the public school.**



Using curriculum for metadating learning objects/content

All the objectives for every subject:

<http://www.emu.dk/omraade/gsk-l%C3%A6rer>

(chose a subject, scroll down, here you can see the main objective for every phase, when you click on a objective, you can read the knowledge objective and the skill objective)

| Kompetencemål | | | | | | |
|---------------|--|-------|--|--|---|--|
| Læsning | Eleven kan læse enkle tekster og bruge dem i hverdags-sammenhænge | Faser | Find tekst | | Forberedelse af læsning | |
| | | 1. | Eleven kan vælge en tekst ud fra et mindre udvalg | Eleven har viden om teksters sværhedsgrad | Eleven kan forberede læsning gennem samtale i klassen | Eleven har viden om måder til at skabe forforståelse |
| | | 2. | Eleven kan finde tekster ved at navigere på alderstilpassede hjemmesider | Eleven har viden om sideopbygning på hjemmesider | Eleven kan anvende enkle förlæsestrategier | Eleven har viden om enkle förlæsestrategier |
| Fremstilling | Eleven kan udtrykke sig i skrift, tale, lyd og billede i nære og velkendte situationer | Faser | Håndskrift og layout | | Forbered | |
| | | 1. | Eleven kan skrive små og store bogstaver i håndskrift og på tastatur | Eleven har viden om bogstavets skriveveje og tastaturets opbygning | Eleven kan formulere underspørgsmål | Eleven har viden om enkle ideudviklingsmetoder |
| | | 2. | Eleven kan bruge enkle funktioner i tekstbehandling | Eleven har viden om formateringsfunktioner | Eleven kan bruge enkle skabeloner til at strukturere sit stof | Eleven har viden om enkel disposition |
| Fortolkning | Eleven kan forholde sig til velkendte temaer gennem samtale om litteratur og andre æstetiske tekster | Faser | Opleve og indleve | | Undersøge | |
| | | 1. | Eleven kan lege med sprog, billeder og fortælling | Eleven har viden om enkel poetisk sprogbrug og billeder | Eleven kan få øje på sproglige træk ved litteratur og andre æstetiske tekster | Eleven har viden om enkle sproglige, lyd- og billedlige virkninger |
| | | | | | Eleven kan udpege | Eleven har viden om |

Example

- Danish, 1.-2. phase, reading, finding text:
 - Phase 1: **Skill objective:** The student can choose a text from a smaller selection; **Knowledge objective:** The student have knowledge of texts severity
 - Phase 2: **Skill objective:** The student can find texts by navigating on age-appropriate websites; **Knowledge objective:** The student has knowledge about page design on websites
- Danish, 1.-2. phase, reading, preperation:
 - Phase 1: **Skill objective:** The student can prepare reading through class discussion; **Knowledge objective:** The student has knowledge about ways to create preunderstanding
 - Phase 2: **Skill objective:** The student can use simple pre reading strategies; **Knowledge objective:** The student has knowledge about pre reading strategies

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Beskrivelse

Yderligere oplysninger

Undervisningsinformation

Klassetrin

7.-9. kl.

Læringsmål

Grundskole

Subject

Fag (Forenklede Fælles Mål)

Biologi

phases

7. - 9. klasse

competence

Kommunikation: Eleven kan kommunikere om naturfaglige forhold med biologi

Target pair

Argumentation

Eleven har viden om kvalitetskriterier for forskellige typer af argumenter i naturfaglig sammenhæng

Eleven har viden om påstande og begrundelser

Eleven kan formulere en påstand og argumentere for den på et naturfagligt grundlag

Eleven kan vurdere gyldigheden af egne og andres naturfaglige argumentation

Faglig læsning og skrivning

Eleven har viden om naturfaglige teksters formål og struktur og deres objektivitetskrav

Knowledge objective, phase 2

Knowledge objective, phase 1

Skill objective, phase 1

Skill objective, phase 2



New projects – New knowledge

- **Data on students progress and learning from various digital learning resources**
- 21st century skills (FabLabs, MakerSpaces, Design Thinking etc)
- Project on implementation and use of digital learning platforms and learning resources
- **Easier access to digital learning resources and learning process through the development of common standards**
- Teacher training in digital competencies
- “Computational Thinking” as a subject



Better sharing of digital learning resources

DK-Standards:

- DK-LOM v1.1: Describe metadata for a learning resource (includes the digitised curriculum)
- DK-Cartridge: Describe how to exchange data between learning platforms and learning resources
- DK-LTI: Describe how to exchange results between learning platforms and learning resources

DK-LOM v1.1. Metadata Applikation Profile

The metadata application profile is based on the LOM v1.0 specification and is optimized for Danish conditions. The profile has the following characteristics:

- is based on and in accordance with LOM v1.0 (not strict conform)
 - the meaning of the individual elements is the same as in LOM v1.0
 - no new elements have been created that imitate the semantic purpose of the existing elements of LOM v1.0
 - no change in the name or location of an item
- introducing some new elements (extensions) compared to LOM v1.0
- a number of Danish vocabularies are specified
- examples are given of a number of classification systems that can be used to classify and enrich an LOM instance

Used Metadata Schemes

Namespaces used within DK-LOM v1.1:

- <http://ltsc.ieee.org/xsd/LOM>
- <urn:dk:lom:extension:1.1>

DK-LOM v1.1. - categories

The metadata elements in LOM v1.0 and DK-LOM v1.1 are grouped within nine categories:

- *General*: This category group general information about the learning object
- *Life cycle*: This category describes version, state and those who participated in the development of the learning object
- *Meta-metadata*: This category relates to the creation of metadata content - not the learning object
- *Technical*: This category describes the technical requirements and characteristics of the learning object
- *Educational*: This category describes the educational and educational characteristics of the learning object
- *Rights*: This category describes the intellectual rights and conditions of use of the learning object
- *Relation*: This category describes the relationship between the learning object and other learning objects
- *Annotation*: This category contains annotations. For example, others' experiences with the learning object and the use of this
- *Classification*: This category describes how the learning object falls within certain classification systems

Easier access to digital learning resources and learning process through the development of common standards

K0-K9

- Test on the existing standards
- Continue developing standards regarding:
 - Content - learning resources (project A)
 - Evaluating learning resources (project B)
 - The work process of learning resources loan (project C)
 - The student plans – learning goal progress – “taxonomy”
- Developing the use - and capacity building of learning platforms

K10-K12

- New reforms are to be implemented regarding updating the curriculum and the IT-systems supporting them, developing standards and research regarding innovative use of IT.

