

Topic 3: Primary and Secondary Education.

Appendix 1 gives a schematic description of the Dutch education system. More information of the Dutch system (in English) can be found on

http://www.minocw.nl/onderwijs/doc/2004/eurydice_en.pdf

Primary school:

Although Dutch primary schools have a subject “nature” its status is low and the number of hours for chemistry depends on the individual teacher and is generally low.

Ten years ago KNCV was one of the founders of the Stichting C3. The Stichting C3 (C3 = Communication Centre for Chemistry) is an independent foundation set up by the Royal Netherlands Chemical Society (KNCV), the Association of the Dutch Chemical Industry (VNCI) and the Dutch Association for Education in the Natural Sciences (NVON).

The goal of Stichting C3 is to inform the public about all aspects of chemistry. Our main target groups are the Dutch education institutes (all levels), the public and the media of the Netherlands.

The C3-Foundation develops educational materials for primary and secondary schools. Recently a program is started together with training colleges for primary schoolteachers to provide the educational materials for educating small children in daily life chemistry. For more information about the Stichting C3 see their website www.C3.nl (partly in English).

Secondary school

At the request of the Dutch Ministry of Education and Science a Committee on Renewal of Chemistry in Upper Secondary Education has been formed. The Committee was chaired by Prof. Dr. Gerard van Koten. The Committee has been consulting a lot of organisations in the educational and professional field of chemistry. The Committee published its recommendations for a new chemistry programme for upper secondary education and now elaborates the recommendations into a curriculum.

The Committee advocates a context-and-concept approach as a continuous learning line. The Committee recommends the development of an examination programme framework, that gives teachers as well as students leeway for more in-depth and broader study. The new programme is aimed at introducing current and future challenges, innovations and questions in chemistry. Chemistry should take the lead in innovation of science education in the Netherlands. (The report in English can be downloaded from: www.slo.nl/scheikunde).

During the preparation of the report the KNCV has organised an internet-debate to provide the committee with useful examples of contexts.

Very recently KNCV has organised, together with 14 societies representing professionals in science and technology a workshop about “science and technology education in the future”. All participants strongly supported the idea of developing more science subjects wherein the monodisciplines were integrated. It was also found necessary to start with science education in primary school.

Answers to the specified questions of CSJ.

- Up to this moment the Ministry of Education strongly influences examination requirements of secondary schools.

- In the Netherlands there are quite a few possibilities for secondary school students to get information (in Dutch) about chemistry via the internet. The KNCV has a program called: "Chemistry projects" that helps secondary schoolchildren with their term papers. Since a year we have in our journal once a month a Kids-page. It provides in an attractive form chemistry information for small children.
- KNCV is supporting the Chemistry Olympiade at a national and international level.

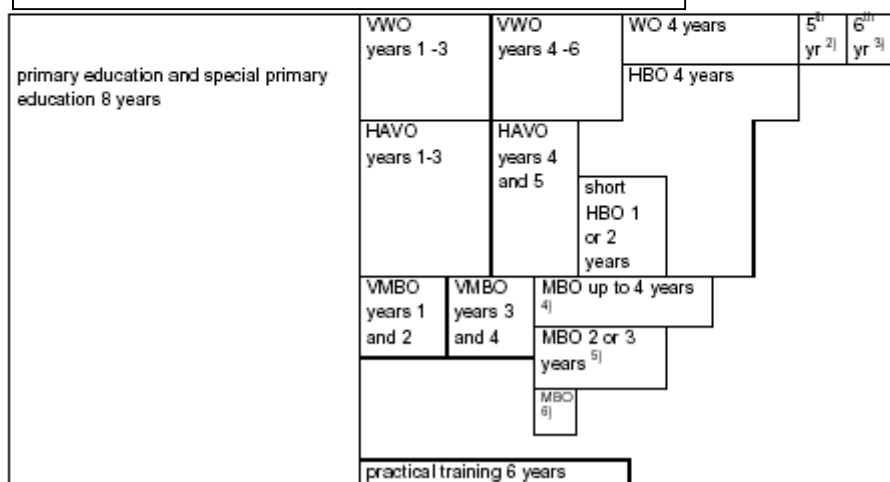
Appendix 1.

Structure of the Dutch education system

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	number of years of education 1)
5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	age ¹⁾

special education (primary and secondary)

Chemistry teaching starts at the age of 14/15



- 1) bold: compulsory education
- 2) dentists
- 3) doctors, veterinary surgeons, pharmacists
- 4) professional, middle-management and specialist training
- 5) basic vocational training: no admission requirements, takes basic vocational programme in pre-vocational secondary education as starting point
- 6) assistant level: no admission requirements, 6-12 months

Explanatory notes:

- Primary education is provided at mainstream primary schools and special schools for primary education
- Secondary education is provided at schools for VWO (pre-university education), HAVO (senior general secondary education), VMBO (pre-vocational secondary education) and practical training
- Basic secondary education is provided in years 1-3 in VWO and HAVO and years 1-2 in VMBO;
- MBO (vocational education) consists of courses (at least 15 weeks), training to assistant level (6-12 months), basic vocational training (2-3 years), professional training (2-4 years), middlemanagement training (3-4 years) and specialist training (1-2 years);
- Higher education comprises HBO (higher professional education) and WO (university education)
- Adult education comprises 4 types of courses and 6 levels of qualification: VAVO (adult general secondary education), NT2 (courses in Dutch as a second language; 5 levels only), courses providing a broad basic education and courses aimed at fostering self-reliance