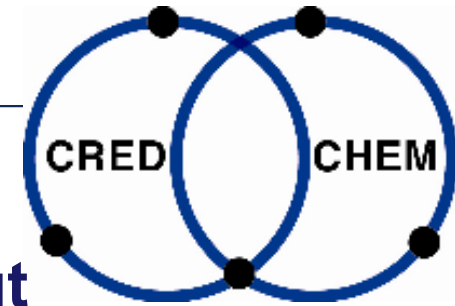


ECVET-Pilot Projects

One year on – Progress to date

Rome, 18-19 February 2010

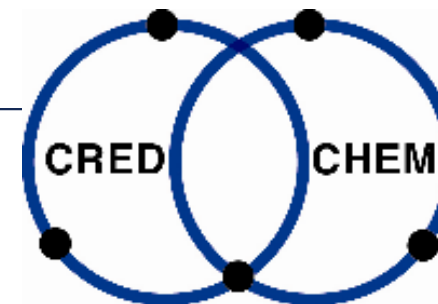


Looking back ...

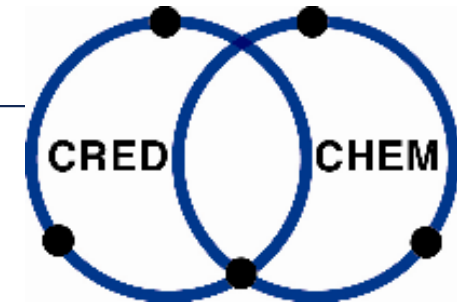
- Modes of work
- From typical work tasks to units of learning outcomes

and what is about to come

- Testing (the two-stage-model)
- Assessment procedures
- accompanying measures
- Memorandum of understanding



CREDCHEM-Partner	Experts involved (practitioners)	National boards (stakeholders)
NAVET Bulgaria	4 schools involved	Board established (7 members)
SIOV Slovakia	Schools involved Working group in SIOV established	Board established (ministries, schools, universities, companies)
NUOV Czech Republic	5 schools involved	Board in the course of formation
ITAS Padova, Italy	Looking for another school Spreading information in the teaching staff	Not planned
BIBB, SBG, TU DD Germany	Companies and practioners involved Synergies with DECVET Partner associated from Poland and Hungary	Board established



From typical work tasks to units of learning Outcomes

1. Agreeing on units of learning outcomes CREDCHEM-Partners
2. Analysing the work tasks covered by the ULO Practitioners / Experts
3. Designing units of learning outcomes in terms of K+S=CTU Dresden (WP leader)
4. Feed back on units Practitioners / Experts
5. Agreeing upon common work tasks for assessment Practitioners / Experts

-> decentralised approach

-> sometimes far away from the current ECVET-discussion

-> based on a lot of cross-cultural communication

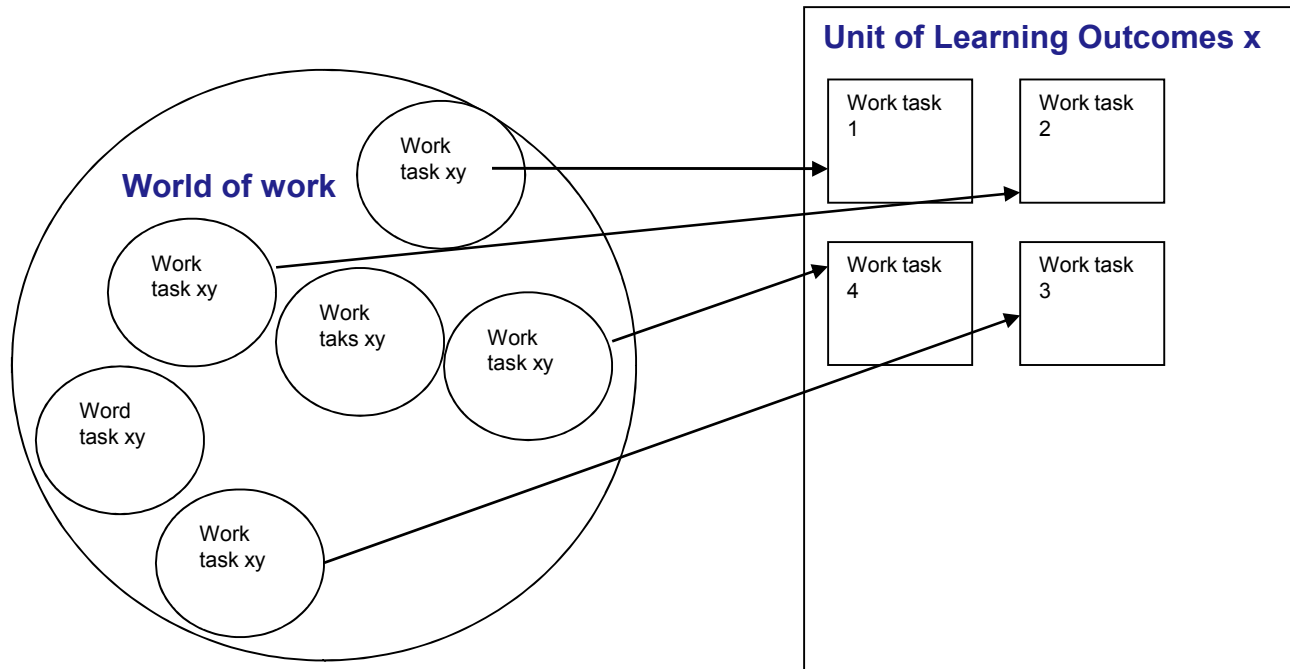
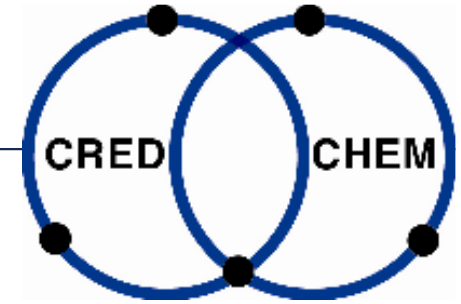
-> CREDCHEM-partners act as „translators“ between Domestic and European requirements (sandwich-model)

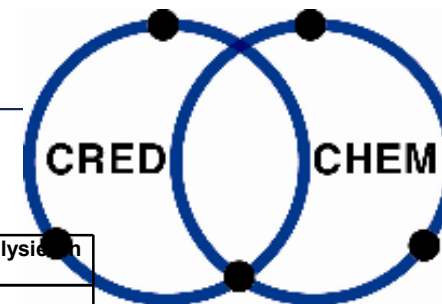


Units of Learning Outcomes

Title of the field of action	Work in laboratory		
EQF Level			
Total ECVET points	100		
Units of Learning outcomes	U1	Preparation and follow-up of analysis and synthesis	
	U2	Defining of material constants and material characteristics	
	U3	Spectroscopic analysing of materials	
	U4	Volumetrically / gravimetric analysing of materials	
	U5	Chromatographically separating and analysis of mixed materials	
	U6	Production of inorganic and organic materials	
	U7	Procedures of synthesis	
	U8	Supervising production processes	
	U9	microbiological testing of materials	
Cross sectional Learning Outcomes	<p>To acquire the learning outcomes properly the following qualifications are essential:</p> <ul style="list-style-type: none"> ▪s/he is able to act with social and ecological responsibility, ▪s/he is able to adopt a quality management, ▪s/he is able to use rmatation and communication technology. <p>not discussed yet</p>		

In a unit of learning outcomes the knowledge, skills and competences are described which are necessary for mastering typical work tasks.





Units of LO based on work tasks

LE 1_Trennen und Mischen von Stoffen	LE 2_Bestimmen von Stoffkonstanten	LE 3_Stoffe spektroskopisch analysieren
<u>Analysed work tasks:</u> -Extraktion von CuSO ₄ (DECVET) -Filtrat. von CaCO ₃ (DECVET) -Herstell. NaOH-Lsg. (DECVET) -Umkristall. von Sulfanilsäure (DECVET) -Wasserdampfdestill. Von Toluol (DECVET)	<u>Analysed work tasks:</u> -Säuregehalt mit pot. Titr. (DECVET) -Schmelzp.-Bestimm. (DECVET) -Zuckergehalt mit Aräometer (DECVET) -Alkoholische Gärung und Destillation (DECVET) -Qualitätskontrolle Sonnenblumenkerne (BG) -Schmelz- und Siedepunkt, Dichte (IT)	<u>Analysed work tasks:</u> -spektralfotometr. Bestimmung von Co- und Cr-Ionen (HU/PL) KS 2, KS 3
LE 4_Stoffe volumetrisch/gravimetrisch analysieren	LE 8_Produktionsprozesse überwachen	LE 9_Stoffe mikrobiologisch untersuchen
<u>Analysed work tasks</u> -Komplex. Bestimmung von Ca-Ionen (HU/PL) KS 1 -Permang. Bestimmung von Ca-Ionen (HU/PL) KS 1 -Redoxtitration von Cu(II)-Ionen (IT) -Permang. Bestimmung von Fe(II)-Ionen (DECVET) -SB-Titration von Essigsäure (BG)	<u>Analysed work tasks</u>	<u>Analysed work tasks</u> -Immobilisieren von Enzymen (BG) -preparation of cultivating medium (SK)



GD Bildung und Kultur

Programm für lebenslanges Lernen

dt, 1.3

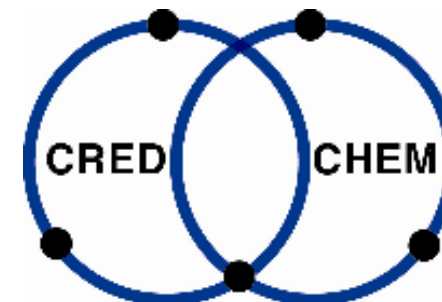
Bundesinstitut
für Berufsbildung

BiBB

Forcieren
Denken
Zukunft gestalten

All learning outcomes are generalised in a matrix

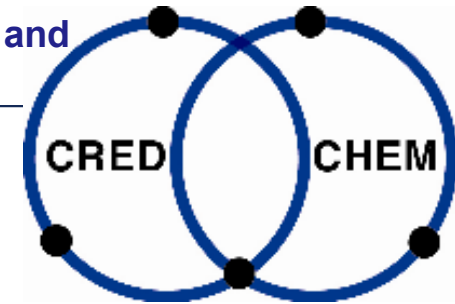
The learning outcomes are described in terms of levels of competence, Skills and knowledge



Unit of Learning Outcomes 1: Mixing and separating of materials		
Competence	Skills	Knowledge
Competence level 1: Carrying out of action according to work instruction -Trennt und mischt Stoffe nach den gängigen Verfahren und passt diese je nach Bedingungen an (wählt je nach Eigenschaften der Stoffe Verfahren aus)	-Nimmt Aufträge entgegen und plant eigene Arbeitsschritte -Baut Apparatur auf, geht dabei exakt, sorgfältig, routiniert mit Labortechnik um -Berechnet Mengen	-kennt Strukturmerkmale, die für Verhalten/ Eigenschaften eines Stoffes verantwortlich sind -Stoffkenntnisse (Eigenschaften, Struktur, R- und S-Sätze) -kennt Trenn-/ Mischprinzipien und entsprechende Verfahren (kennt Handlungsschritte)
Competence level 2: Problem-oriented carrying out -geht mit für verfahrenstypischen Problemen um	- Problemlösefähigkeit - Anwenden von Fachwissen - Reflexionsfähigkeit	-kennt Löslichkeiten der Stoffe (bei unterschiedlichen Temperaturen) -kennt Neutralisationsreaktion
Competence level 3: Optimising of methods / procedures -...	- ...	- ...
Work tasks		Competence level
Extraktion von CuSO ₄		
Filtration von Calciumcarbonat bei Unterdruck		
Herstellung einer Natriumhydroxid-Maßlösung		
Umkristallisieren von Sulfanilsäure		
Wasserdampfdestillation von Toluol		



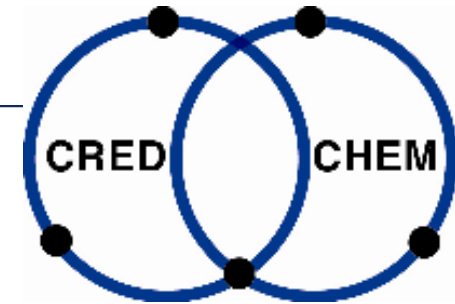
In addition to the learning outcomes the matrix contains country specific and general information



Lernergebniseinheit 1: Mischen und Trennen von Stoffen		
<i>Reference to the national qualifications</i>	DE	Lernfelder 1+2; Qualifikationseinheiten 6.4+7.1+8.2 des Ausbildungsberufes ChemielaborantIn
	BG	
	IT	
	SK	
	CZ	
<i>Credits:</i>	DE	
	BG	
	IT	
	SK	
	CZ	
<i>Level (EQF):</i>		
<i>Kind of assessment:</i>	Stufe 1+2 der Kompetenzerfassung	
<i>Learning venue:</i>	DE	Company / training provider
	BG	
	IT	
	SK	
	CZ	
<i>Proposed duration of mobility measure:</i>		



What is about to come?



Testing the units (two-stages-model)

Trainers and teachers	mobility (spring)
Apprentices and pupils	mobility (autumn)

Matching: who will go where? who will offer which unit?

Assuring quality

Agreeing upon common work tasks for assessment (practitioners)

Carrying out assessments in mixed teams (first cycle)

Precondition:

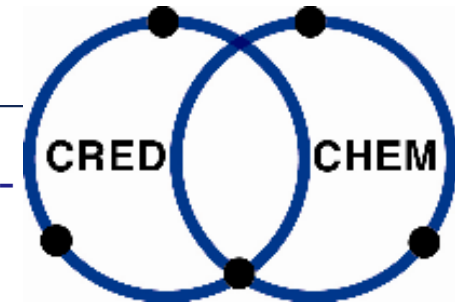
face-to-face communication and interaction of the practitioners / experts

Planned: „CREDCHEM- summer academy“ (accompanying measures) in the framework of a learning partnership

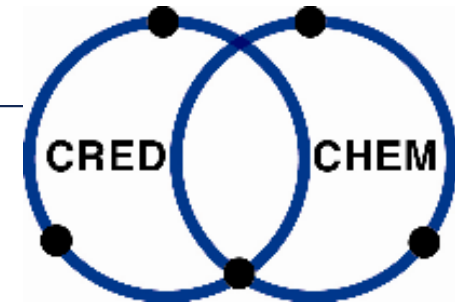


Who is involved in the next steps?

Partners applying for mobility measures to test CREDCHEM-Units (teachers and trainers)



Country	Partner	Institution
Italy	LdV 1	ITAS
Bulgaria	LdV 2-4	3 Vocational upper secondary schools
Slovakia	LdV 5-7	2 vocational schools
Czech Republic	LdV 8-10	2 vocational schools
Germany	LdV 11-12	SBG (Coordinator) TU Dresden
Hungary	LdV 13-14	2 vocational schools
Latvia	LdV 15	Vocational College
Poland	LdV 16-17	Vocational upper secondary schools



Next steps:

Partner-meeting in Bratislava, April 22 – 23: Memorandum of Understanding (based on the SME Master + - format)

Agreeing upon work tasks suitable for common assessments

Carrying out the assessments in a dry run (agreeing upon common procedures)

CREDCHEM- „summer academy“ in Dresden: August 2010 (for experts and practitioners), perhaps: meeting of the German Board

Matching of individual mobilities in the framework of learning partnerships

Discussing questions of recognition with the boards (competent bodies)

Continuing close cooperation with the Ministry, the DECVET-initiative and the National Agency in formulating further strategies for implementation