

LEARNING.PPNC.EU · AND RELATED TOOLS

Create, check, connect.

for every language section of the European Schools
starting with mathematics and physics

By teachers, for teachers.

Mark Popenco · Mathematics & Physics · European School Alicante

ONE QUESTION FIRST

What is the one thing no school can buy more of?

Time.

WHO IS TALKING TO YOU

A teacher who has run school IT and data protection



Mark Popenco

European School Alicante

Mathematics & physics teacher

since 2016 · European School Alicante since 2023

Careers counsellor, German section

since 2024 · European Baccalaureate rules · converting Bac grades for German universities

Head of digital strategy of a school

2018–2023 · 1:1 iPads, school network, Moodle, teacher training

Data protection officer of a school

2018–2023 · GDPR compliance for pupils and staff

M.A. School Management

TU Kaiserslautern, 2022 · organisational development, quality management, school law

University certificate: Digital Education Processes

TU Kaiserslautern, 2021 · digital school development, IT change management

39 schools, one syllabus: every teacher builds alone

13

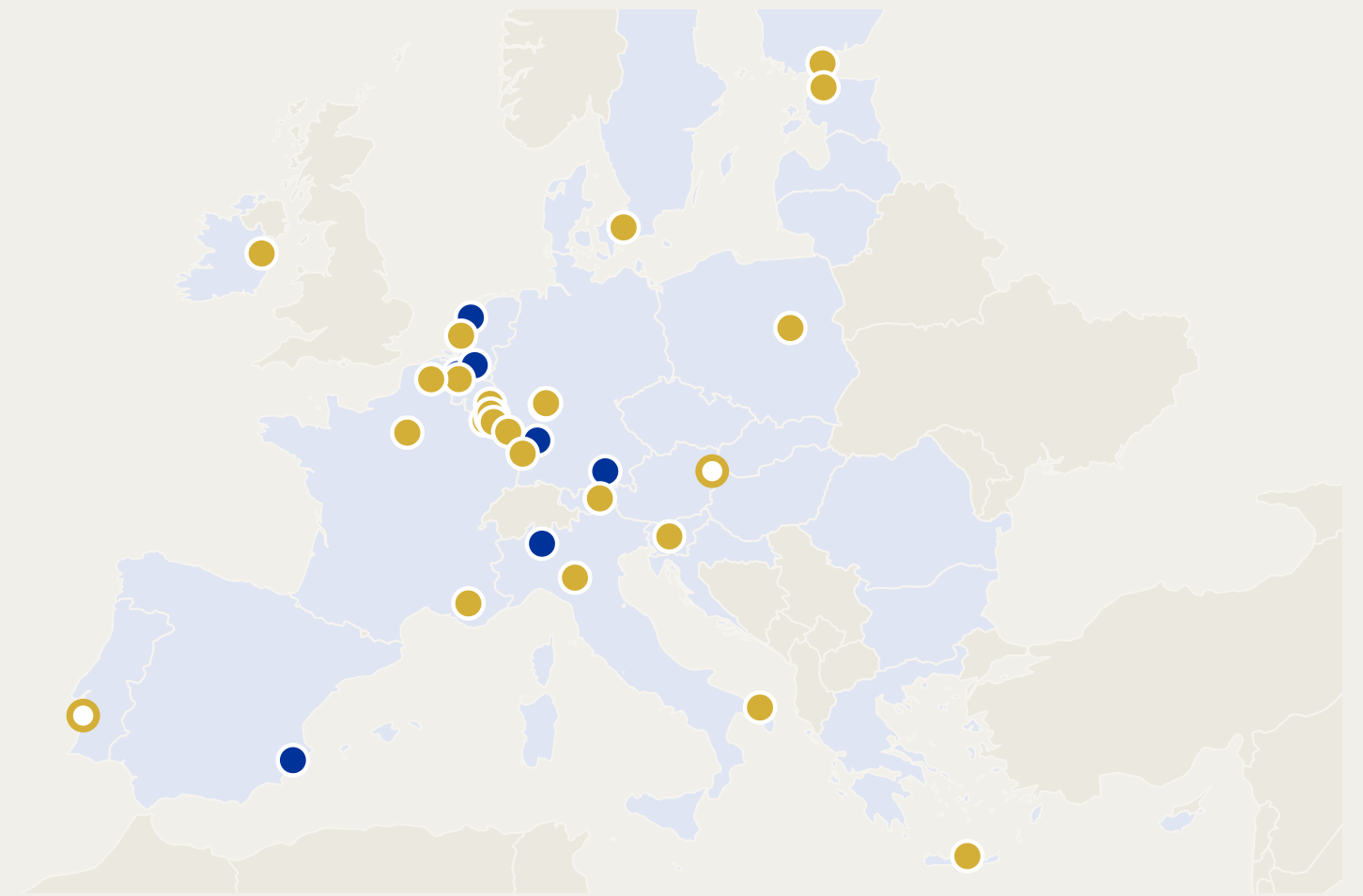
● European Schools
28 931 pupils

26

● Accredited European
Schools
17 083 pupils · 2 in
accreditation

46 014 pupils in total**2 614**

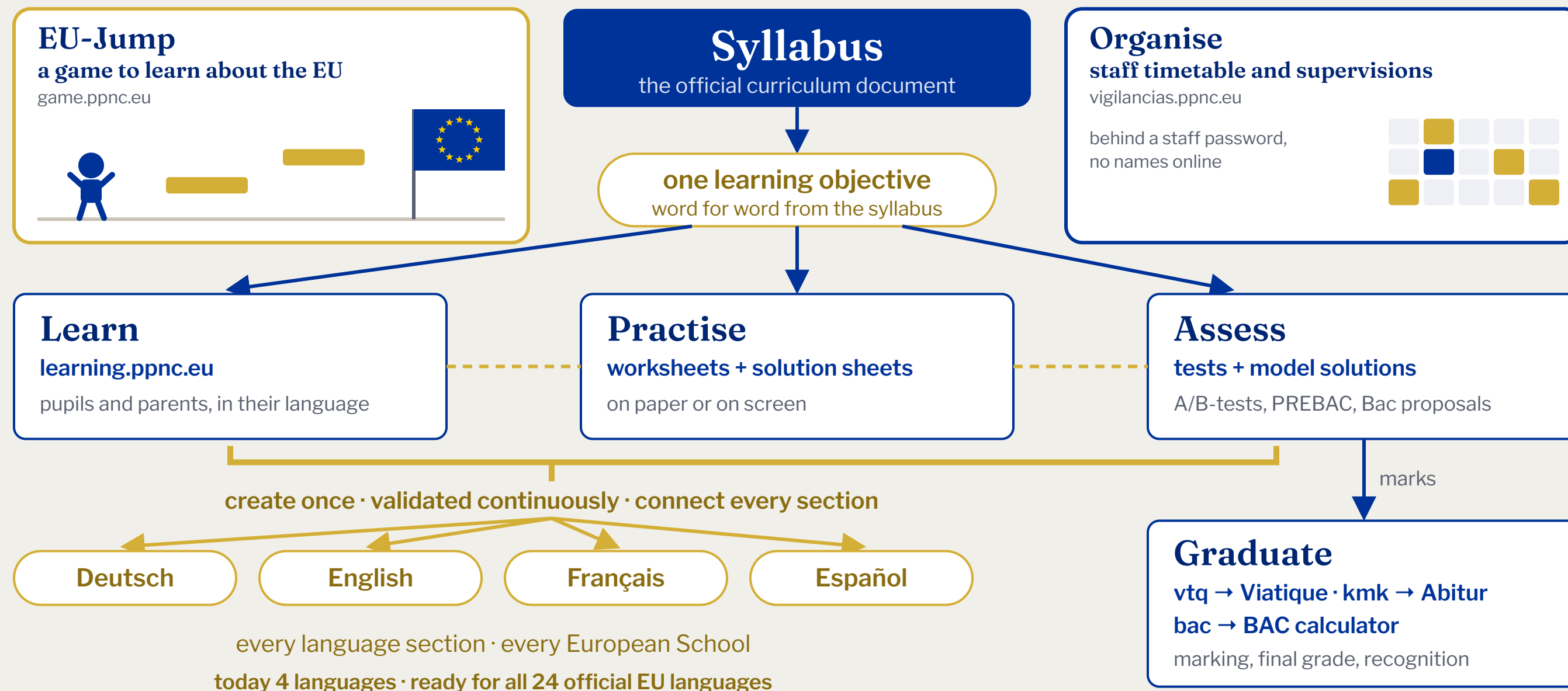
teachers in the 13 European
Schools
full-time equivalent · 1 641 of
them in secondary



Same objectives, rebuilt by every teacher, in every section: work that never reaches a pupil.

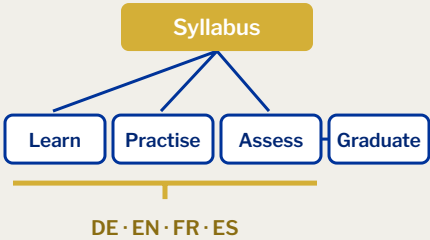
VISION

Everything from one syllabus, for every language



HOW IT IS BUILT

Not a chat window: AI guided by a European Schools knowledge base



	A CHAT (E.G. CHATGPT)	THIS SYSTEM
Source	whatever the model remembers	the official syllabus, objective word for word
Validation	none: errors reach the class	304 validation rules today (about 100 in August), applied to every change, continuously
Result	a one-off text for one teacher	a shared library for every section and school

HOW IT IS BUILT · LEARNING SCIENCE

Every design choice has a reason, and a source

Support that fades

Worked examples for beginners, fewer hints as pupils advance.

Kalyuga, Ayres, Chandler & Sweller 2003

Mixed, spaced practice

Short sheets over time, mixed tasks instead of blocks.

Rohrer & Taylor 2006 · Rohrer et al. 2020

Several representations

Graph, table and formula, linked on purpose.

Ainsworth 2006

Fair tests, quick to mark

Clear multiple choice, analytic marking schemes.

Haladyna et al. 2002 · Jonsson & Svingby 2007

Each sheet names the reason for its design. Where research is thin, it says so.

DATA PROTECTION AND AI

Safe by design

Pupils' data

No accounts, no pupil names. Pupils just open the page; progress stays on their own device.

No third parties. No tracking, no analytics, everything from one server in Germany.

AI

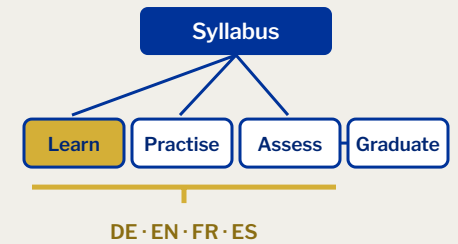
The teacher decides. AI drafts, a teacher reviews and releases every page by hand.

No AI in pupils' tools. Plain web pages, no chatbot.

No personal data, nothing internal. Names, internal exam papers and pupils' work never reach an AI.

Open and European. Labelled “AI-assisted”; translations by the open-source EuroLLM, locally.

Same page, four languages, one click



learning.ppnc.eu

12 courses · 178 learning pages · maths and physics,
S4–S7

EN

FR

ES

DE

The explanation in the first language, one click
away.

free

no login

no pupil data

any device

Live: [learning.ppnc.eu ↗](https://learning.ppnc.eu)

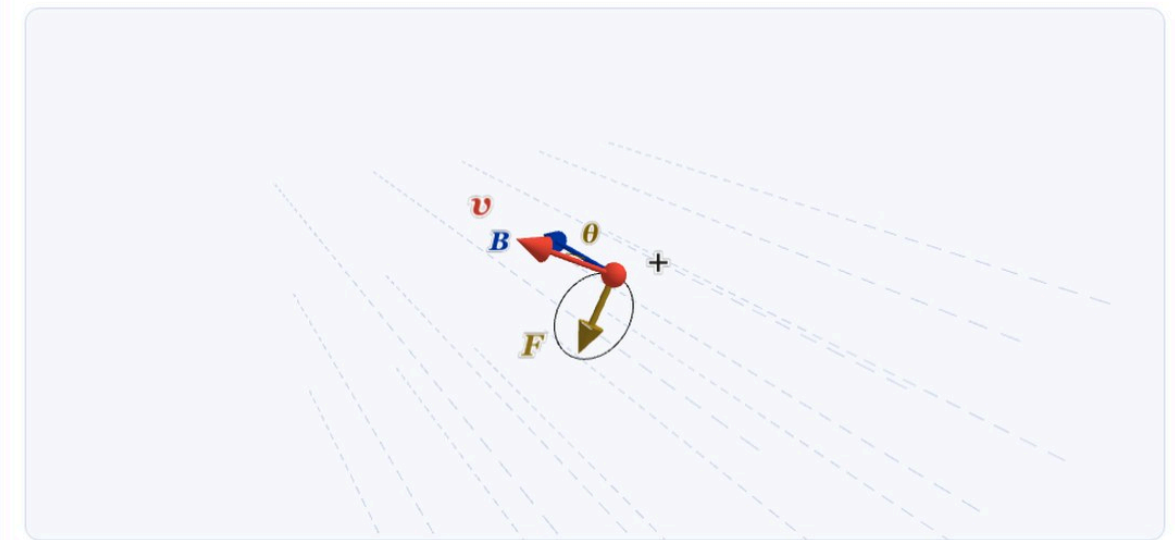
Magnetic field

PHYSICS · S7 · PHY · LEARN

EXPLORE

Explore: $\vec{F} = q \vec{v} \times \vec{B}$ in space

A particle moves with velocity v through a uniform magnetic field ($B = 0.10$ T). **Commit first** to where the force points — then the scene shows it. Rotate the scene to see all three directions.



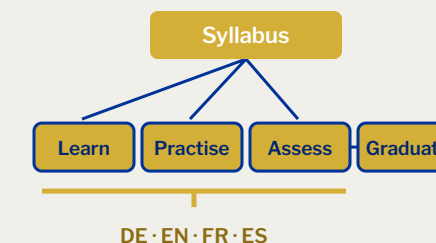
Pause Perspective Front Top Reset view

Drag to rotate · wheel or two fingers to zoom · arrow keys on the stage

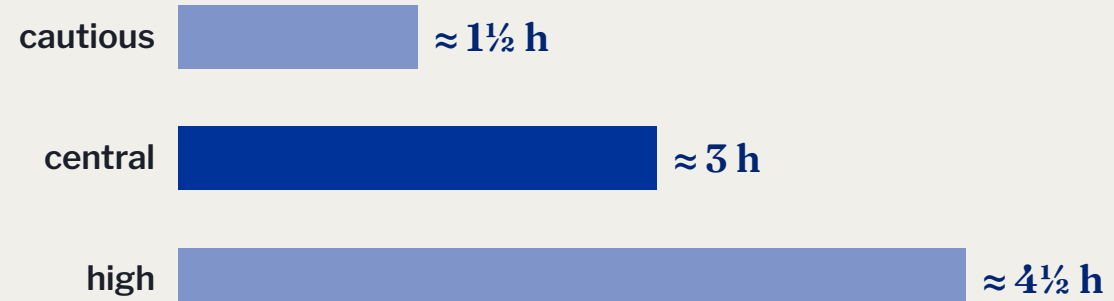
S7 physics · magnetic field · the force on a moving charge, in 3D

EFFICIENCY

Estimated: three hours saved per teacher per week



HOURS SAVED PER MATHS OR PHYSICS TEACHER PER WEEK



Sheets with solution per week

BY HAND

CHECKED AI CHAIN

2–5 → ≈ 40

About ten times as many. Measured in weeks 38–40, 2026: 27 · 38 · 52 sheets. By hand: one teacher's practice.

≈ 100 h

per teacher and
school year
2.86 h × 36 school
weeks

≈ 170 000 h

per school year,
across the 1 641 full-
time secondary
teaching posts of the
13 European Schools
extrapolation: same
saving in every subject

≈ 100

full-time teaching posts, every
year, on work done again and
again
170 000 h ÷ about 1 700 working
hours per post

WHAT THREE HOURS A WEEK MEAN

Less workload, less stress

Time for individual support

Time for creative projects

Time to work with colleagues from other sections

Room for what falls off the agenda today

Anchors: planning 6.8 h/week (OECD TALIS 2018) · –31 % preparation time with AI alone (EEF trial 2024, 259 teachers). Assumptions (teacher practice): 40–50 % of preparation is materials; 4 tests × 3 further sections × 1–4 h; coordination between sections 0.25–1 h/week; 36 school weeks.

VISION

Every pupil their own path to the same objectives

Paths for different learners

Several routes to one objective: more visual, more practice, more challenge, extra language support.

A suggested next step

The page suggests what to do next from the pupil's own answers, worked out on the pupil's device, with no data on a server.

Practice that adapts

Self-checks that give more of what is still hard, and less of what already sits.

Feedback that improves it

Pupils and teachers report from any page; each report becomes a fix and, where possible, a new check.

The foundation is there, and it already reaches beyond maths and physics: first pilots with colleagues in **history** and **English**. Next: a growing team, more subjects, a pilot year.

Pilots: learning.ppnc.eu/kollegen ↗

YOUR TURN

Try it yourself



learning.ppnc.eu

Learning paths in maths and physics, S4–S7, in four languages.

Pick a course, switch the language, try a learning path and its exercises.

Free, no login, no pupil data, on any device.

learning.ppnc.eu ↗

WHAT IT IS ALL FOR

More time for what matters most:

the pupils.

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learning.ppnc.eu

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More tools to try later

One worksheet, 24 languages	The same worksheet in every official EU language, translated locally with EuroLLM.
kuk.ppnc.eu	Interactive model solutions of tests, in four languages. Staff login.
bac.ppnc.eu	How subject choice and marks make the final Bac grade, for pupils and parents.
learning.ppnc.eu/kollegen	First pilots with colleagues: history (S5, the Industrial Revolution) and English (S6, five lenses for novels).
vtq.ppnc.eu	Turns a teacher's marking grid (direct, Excel or Word) into a Viatique file.
kmk.ppnc.eu	Converts Bac results into a German Abitur grade (KMK rules); runs only in the browser.
vigilancias.ppnc.eu	Staff timetable and exam supervisions. Staff password.
game.ppnc.eu	EU-Jump: a small game about the 27 EU countries.
info.ppnc.eu	Everything in one place: presentations, project brief, technical overview, contact.