

Introduction to Databases



Subject: **ICT** · Relational Databases ·

Teacher: **Maria BOUMPOUKA**

11th grade, age 16-17

Lesson Duration: 90 minutes

European School of Brussels

II

AI Navigators: Empowering Teachers for the AI Era

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Why this case stands out



Authentic problem first

Students begin with a familiar spreadsheet and ask what happens when data grows to millions of records.

Practice in a live environment

Students test their solutions directly in the W3Schools platform.

Self-paced learning

The worksheet lets students study examples and practise on similar tasks at their own pace.

AI-supported differentiation

AI generated specific examples and tasks on the teacher-provided layout, with baseline and extension exercises.



The learning challenge

- 1 Recall and explain the purpose of a relational database and the concept of a table, field and record.
- 2 Write and execute SELECT statements to retrieve data from a single table
- 3 Retrieve data from two tables using INNER JOIN.

The hook: when a spreadsheet is no longer enough

- 1 Project a simple spreadsheet of student data (names, marks, city).
- 2 **Ask: 'What problems arise when data grows to millions of records?'**
- 3 Brief class discussion: elicit ideas about searching, filtering, updating.
- 4 Introduce the concept: databases are designed to solve these problems.



Lesson at a glance

RECALL

tables ·
fields ·
records ·
primary key

DEMONSTRATE

W3Schools
TrySQL ·
Customers
table

LIVE-CODE

teacher
models and
explains

PRACTISE

worksheet
+ similar
tasks

TEST

students try
solutions in
W3Schools

DISCUSS

summary +
whole-
class
discussion

Where AI enters the lesson

Teacher purpose

“Generate examples and tasks for each different topic”

AI-generated material
Worksheet

Practice environment
W3Schools platform, Teams

AI supported the creation of the worksheet and the task set rather than replacing the live demonstration or student practice.

The main activity: self-paced SQL practice

Students use the worksheet to study the examples and practice on similar tasks.

STUDY

Review a worked example in the worksheet.

PRACTISE

Apply the same idea to a similar query task.

TRY

Test the solution in the W3Schools platform.

Differentiation is built into the task set

Baseline exercises

A core route through the worksheet for students working on the essential database skills.

Exercises for extension

Additional tasks provide a more demanding route for students ready to go further.

Teacher reflection:
The differentiation could be improved.

Evidence of learning



Completed worksheet

Students leave a tangible record of the examples and tasks they completed.

Class discussion

Participation provides an additional check of understanding.

Follow-up

Create queries based on student activities.

Lesson closure: Summary, Whole class discussion

Why it is transferable

1 Start with scale

Use a familiar spreadsheet to surface the need for databases.

2 Model in a real tool

Demonstrate directly in an accessible browser-based SQL environment.

3 Let students work at pace

Combine worked examples with similar practice tasks.

4 Use AI for task generation

Keep the teacher's layout and learning goals, while AI creates examples and exercises.

5 Keep a critical improvement lens

As teacher explicitly identify differentiation as the next area to strengthen!



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