Data Logging

Dynamical Modeling

Video Analysis

Animations

STEM
SCIENCE - TECHNOLOGY
ENGINEERING - MATH

Image Analysis

Spreadsheet

Control Programs

Data Processing

Coach 7

The most powerful and versatile software for STEM Education

Coach is one-of-a-kind software environment, which offers a unique combination of tools for STEM Education. It is a product based on over 30 years of ongoing development driven by new technologies, educational research, and classroom experience.

In our approach students are involved in authentic learning. They collect or generate data, create and apply models, use simulations and visualizations, compare results from experiments and models, ultimately constructing their own understanding.
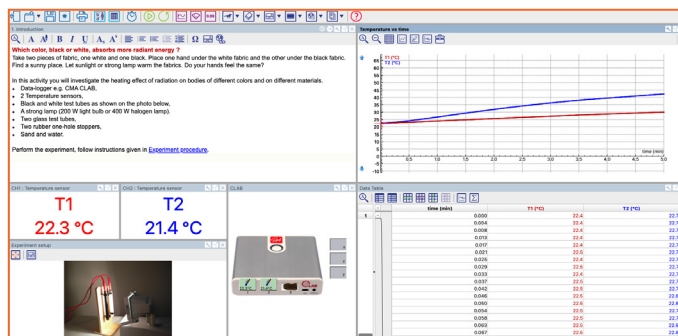
Tools for collecting and generating data
Science investigations produce data. Coach integrates several tools that allow the collection of real-time data and the generation of new data.

Data Logging
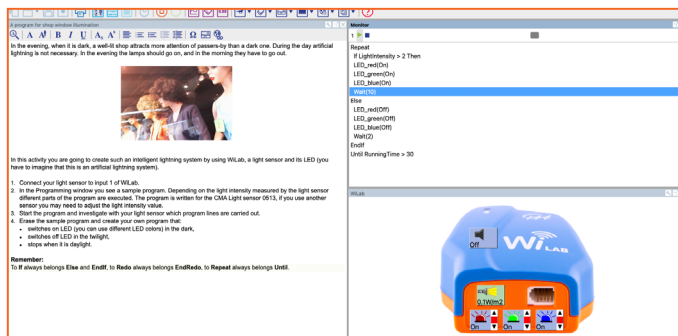### For collecting data

The Coach Measurement Activities enable you to collect data via the CMA interfaces and sensors. The program offers different measurement methods, a wide range of sampling frequencies, an easy setup, and automatic sensor recognition. Moreover, it is possible to record a video and synchronize it with a measurement, providing real-time visual representation of the experiment. Data logging allows students to work directly with high-quality real-time data.
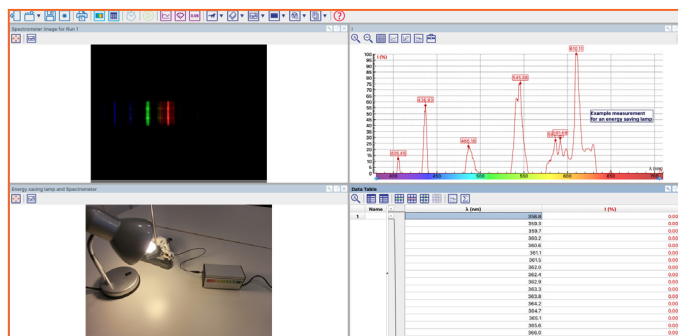

Control
For creating control programs

The Coach Control Activities enable you to create and use control programs for the CMA interfaces equipped with control outputs such as CoachLab ll+, or interfaces with built-in actuators, such as WiLab. The environment offers several modes of programming. Control allows students to learn programming skills and to design solutions.

Spectrometer
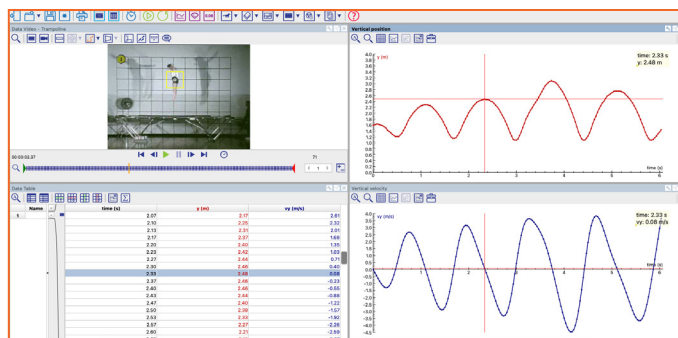### For recording emission and absorption spectra

The Coach Spectrometer Activities enable you to collect images from the CMA Spectrometer and to record emission and absorption light spectra. Spectrometer allow students to see the different color components of white light, learn the theory of light emission, and observe the emission and absorption spectrum of different chemical elements and solutions.
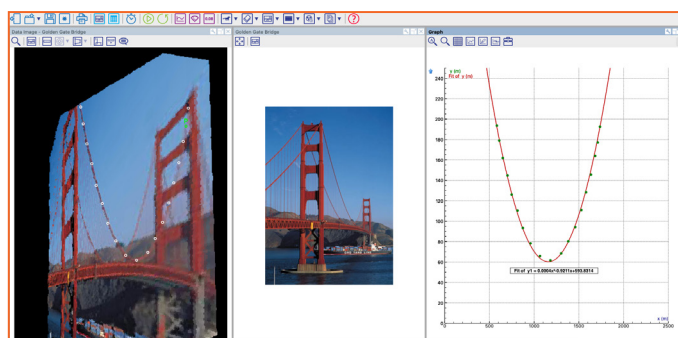

Data Video
For measuring on digital videos

The Coach Data Video Activities enable you to collect data from videos, manually by clicking or automatically by tracking the selected objects. Students can capture their own videos with the help of a camera or mobile devices. Furthermore, there are extra tools for capturing and editing video or correcting perspective distortion. Data Video brings the real world into your classroom.

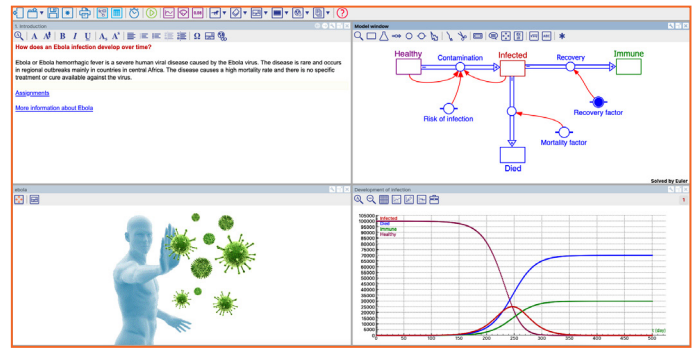## Data Image
For measuring on digital images

The Coach Data Image Activities enable you to collect data from images or photos. During measurements on an image, the position data or position and time data for a stroboscopic image are collected. Furthermore, there are extra tools like correcting perspective distortion. Data Image, like Data Video, brings the real world into your classroom and allows you to analyse the shapes of real objects.

Modeling
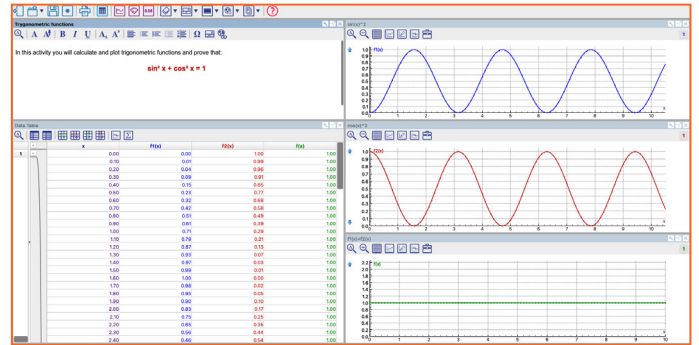### For developing and using dynamical models

The Coach Modeling Activities enable you to construct and explore dynamical models, in which the evolution of a system is computed step by step. For creating models graphical and text modes are available. Students can use models to test a hypothesis and to compare experimental data with model results. Modeling helps students to understand the world of computational models, which are used today in every area of research and industry.

Spreadsheet
For working with data only

The Coach Spreadsheet Activities enable you to create tables with data sets entered manually, or via import, from a CSV file or another file, and to use built-in Coach formulas, operations, and functions. It enables working with data, plotting them in graphs, and analyzing them using the various tools provided in Coach.
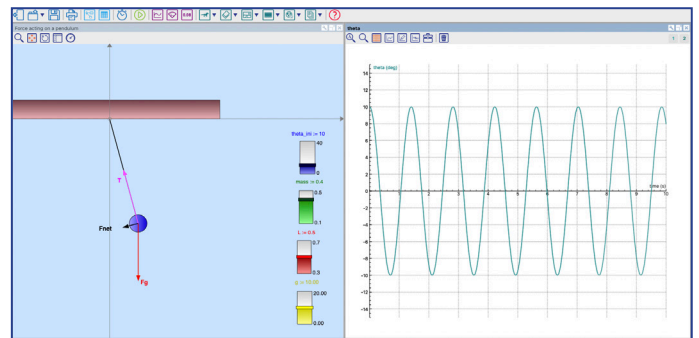

Tools for analysing and interpreting data

The collected data must be analysed in order to identify features and derive meaning. It does not matter how the data has been collected, they can be processed with the same tools across the Coach program.

Animation
For creating visualisations

Coach Activity can include animations in which graphical objects are animated by data generated by sensors, models, formulas, or programs. Interactive controls, like buttons and sliders, allow altering parameters of the animation to see the effect of those changes. Animations offer another way of presenting data and help students to better understand the meaning of data.

Data Table
For managing data

Coach Activity has one table which consists of run series and associated data series. The program automatically creates data series for the data collected via sensors, video and image measurements, generated by models or mathematical functions, or entered manually. It offers many different tools for managing data in the table.
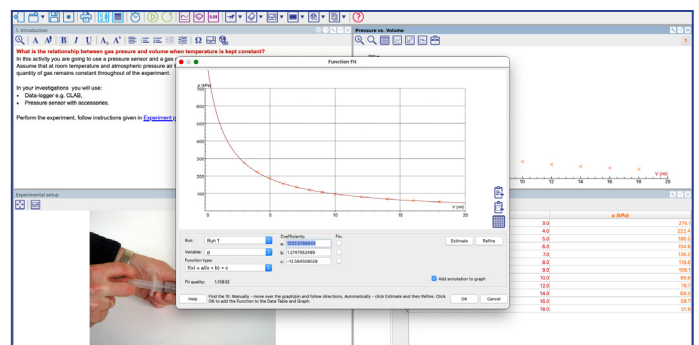
Graph
For showing the relationships

Coach Activity can include many graphs which can be prepared before the measurement and are automatically updated during data collection. Real-time presentation of data while being collected is a very powerful feature that helps students to connect the investigated phenomenon and the resulting graphs. Moreover, a graph can be synchronized with a video to link the visual display with its abstract graphical representation.

Analyse & Process
For identifying features and interpreting results

Coach offers tools for zooming, reading values, determining changes, slopes, and areas under graphs. It also facilitates data processing, such as managing, smoothing curves, fitting functions, and performing statistical analysis, including histograms.

Tools for creating learning content and student reports

**Coach offers tools to create exciting learning content by Author users.
The same tools can be used by Student users to create reports of their work.**

Author Texts

To create texts by Authors e.g., to ask a research question,
describe an experiment or explain a phenomenon.

Student Texts

To create student worksheets by Authors or reports by Students.

Images

To display an experiment setup or a schematic diagram,
or to illustrate a phenomenon.

Videos

To ask questions, to illustrate or give an explanation.

Webpages

To offer direct links to interesting websites.

**Adapt existing activities to your own needs or
create exciting activities filled with your own
learning content.**

The Coach program enables:

- *Author users*
  to create their own custom activities with the type of tool
  to be used, for the desired student level, with texts, images,
  videos, and with a selected layout.

- *Student users*
  to create interesting reports with data, write answers,
  additional explanations, add their own images and videos.

Always and anywhere

Following innovative educational ideas CMA
develops teaching and learning activities for use at
different school levels. Our activities are authentic,
inquiry–based and facilitate active learning by
students. Simply register with your Coach 7 License
Code, then login and download the activities.

Are you interested in using our lesson materials?

With your Coach 7 license you get free access
to our collection of teaching resources.

Coach is designed for Bring–Your–Own–Device
policies, allowing seamless use on computers and
mobile devices for teachers and students at school
or home. Users enjoy a consistent experience
across different technologies. Additionally,
Coach 7 Activities and Results can be easily
exchanged across all supported platforms.

Download Coach 7 and try for yourself.

With a demo code you may use it free for 60 days.
Sign up first to get a free demo code.