

# PRESENTATION SKILLS

## Content

- Preparation work, books and Internet research
- Structure of a presentation
- Presentation software, typing, inserting images and videos, using animations
- Delivery: body language, speech, interaction
- Timing
- Notes and handouts

## Resources & ICT

- Keynote presentations
- Online resources available from BM website
- Library and Internet research

## Types of assessment

- Quality of preparation work
- Scientific content of the presentations
- Slide design
- Peer assessment
- Judgement of effort and attitude towards improving

## Students to Know

- How to search for information regarding scientific topics
- How to structure an efficient presentation
- How to use presentation software in order to insert text, images and videos

## Students to Understand

- The importance of body language and interaction when giving a presentation
- The different ways to enhance a presentation

## Students to be able to Do

- Practice their speech
- Prepare notes and handouts
- Respect the allocated time

## Cross curricular links

- Students choose the topics they present, they are encouraged to include references to other courses they take (use of chlorine during WWI, economic and geopolitical impact of crude oil extraction and refinery, biological effects of a lack of sleep, etc.)
- English; reinforcement with EAL students

## Differentiation incl. EAL

- EAL students create vocabulary lists with key words translated into their mother tongue
- Extension tasks for faster students, refinement of design and/or content using sources suggested by the teacher
- Group work considerations; mixed ability

## Learning styles activities

- Presentation production
- Notes and handout preparation
- Individual and group training
- Lectures



Dual-fuel gas station at São Paulo, Brazil - A alcohol and G gasoline

Mario Roberto Duran Ortiz / CC BY 3.0

## Global citizenship, internationalism, local environment

- Students choose the topics they present, they are encouraged to include references to their home countries (use of ethanol as a fuel in Brazil, desalination plant in UAE, production of electricity in Switzerland, etc.)



# LABORATORY SKILLS

## Content

- Dependent and independent variables
- Date collection and observations
- Quality of measurement and observations
- Decisions relating to measurements or observations
- Recording data and observations
- Display of calculations and reasoning
- Safety

## Resources & ICT

- Lab equipment
- Online resources available from BM website

## Students to Know

- How to set up apparatus
- How to decide how many tests to perform
- How to present numerical data, values or observations in a single tale of results

## Cross curricular links

- Mathematics; graphing skills, calculations involving straight lines, gradients and y-intercepts
- English; reinforcement with EAL students

## Students to Understand

- The use of apparatus to collect an appropriate quantity of data and observations
- The importance of making measurements that span a range
- When repeated readings are necessary

## Differentiation incl. EAL

- EAL students create vocabulary lists with key words translated into their mother tongue
- Extension tasks for faster students, refinement of experiments and/or deepening of their initial questioning
- Group work considerations; mixed ability

## Types of assessment

- Question and answer in class
- Individual practicals and write ups

## Students to be able to Do

- Follow instructions given in the form of written instructions or diagram
- Show their working in calculations and the key steps in their reasoning

## Learning styles activities

- Planning practical sessions
- Experiments - in groups and individually
- Application of knowledge to unfamiliar questions
- Lectures



## Global citizenship, internationalism, local environment

- Field trips to local meaningful research centers: underground laboratory in Saint-Ursanne, Centre de Recherche en Physique des Plasmas at EPF Lausanne, CERN in Geneva

# GRAPHING & REPORTING SKILLS

## Content

- Data layout
- Plotting a graph
- Best fit line
- Gradient and y-intercept
- Interpretation of data or observations
- Identification of sources of error
- Drawing conclusions
- Suggesting improvements

## Resources & ICT

- Online resources available from BM website
- Library and Internet research

## Students to Know

- How to choose a suitable and clear method of presenting the data, e.g. graphs
- How to draw straight lines of best fit or curves to show the trend of a graph
- How to determine the gradient of a straight line graph

## Students to Understand

- The importance of plotting all points to an appropriate accuracy
- How to summarise the key points of a set of observations

## Students to be able to Do

- Plot appropriate variables on x- and y-axes
- Choose suitable scales for graph axes
- Describe the pattern and trends shown by data
- Identify the most significant sources of error in an experiment
- Draw conclusions from an experiment considering whether experimental data supports a given hypothesis
- Makes scientific explanations of the data, observations and conclusions that they have described
- Suggest ways in which an investigation can be extended to answer a new question

## Cross curricular links

- English; writing skills
- English; reinforcement with EAL students

## Types of assessment

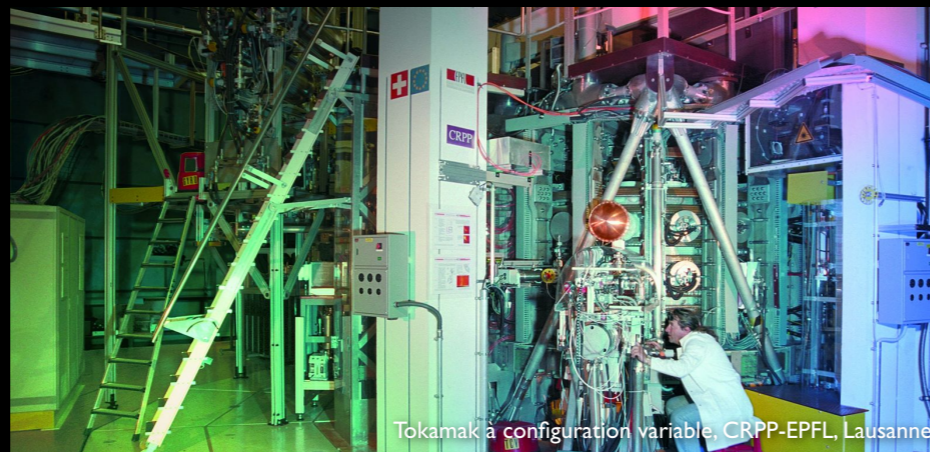
- Question and answer in class
- Individual practicals and write ups

## Differentiation incl. EAL

- EAL students create vocabulary lists with key words translated into their mother tongue
- Extension tasks for faster students, refinement of the report, extra requirements when writing introduction and conclusions
- Group work considerations; mixed ability

## Learning styles activities

- Application of knowledge to unfamiliar questions
- Individual and group work
- Lectures



Tokamak à configuration variable, CRPP-EPFL, Lausanne

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## Global citizenship, internationalism, local environment

- Field trips to local meaningful research centers: underground laboratory in Saint-Ursanne, Centre de Recherche en Physique des Plasmas at EPF Lausanne, CERN in Geneva

